FM 17-33

DEPARTMENT OF THE ARMY FIELD MANUAL

TANK UNITS PLATOON, COMPANY AND BATTALION

HEADQUARTERS, DEPARTMENT OF THE ARMY
AUGUST 1957

FIELD MANUAL

TANK UNITS—PLATOON, COMPANY, AND BATTALION

FM 17-33
CHANGES No. 1

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *11 December 1959*

FM 17-33, 23 August 1957, is changed as follows:

Substitute the term "nuclear" for the term "atomic" throughout this manual.

Substitute the term "nonnuclear" for the term "nonatomic" throughout this manual.

Substitute the term "plan" for the term "scheme" throughout this manual.

1. Purpose and Scope

* * * * * * *

d. (Superseded.) While the employment, of other types of units such as infantry, artillery, engineer, and Army aviation is mentioned in this manual, FM 1-100, and field manuals of the 5-, 6-, and 7-series, should be consulted for the basic and detailed tactics and techniques of these units. In addition to FM 17-1, armor series manuals that supplement this manual are as follows:

FM 17-100, Armored Division and Combat Command.
FM 17-50, Armor Logistics.
FM 17-70, Signal Communication in the Armored Division.
FM 17-20, Armored Infantry Units—Platoon, Company, and Battalion.
FM 17-35, Armored Cavalry Platoon, Troop, and Squadron.

* * * * * * *

5. Tank Crew Teamwork

* * * * * * *

c. (Superseded.) For details concerning crew drill and service of the piece, see FM 17-12, FM 17-78, FM 17-79, and FM 17-80.

21. Medium Tank Company, Armored Division Armor Battalion, 90-MM

* * * * * * *

c. Headquarters Section.

(1) Key personnel in * * * and communication chief.

* * * * * * *

(b) The executive officer * * * and battalion headquarters. He is also the company maintenance officer and rides in the maintenance section 1/4-ton truck.

* * * * * * *

(3) When contact with * * * of the team. The remaining 1/4-ton truck is used by the first sergeant. It may also serve as a messenger vehicle.

* * * * * * *

e. Maintenance Section. The maintenance section * * * battalion maintenance platoon. The maintenance sergeant supervises company organizational maintenance and is in charge of the company reserve of repair parts. Specific duties of the maintenance sergeant are contained in TM 9-2810.

* * * * * * *

22. Medium Tank Platoon

* * * * * * *

b. Duties of Key Personnel.

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(5) (Superseded.) *Gunner.* The gunner may lay and will fire the main tank gun and the coaxial machinegun. He is responsible to the tank commander for the maintenance of all tank-mounted weapons.

* * * * * * *

25. Tank Company Communication System, General

* * * * * * *

b. Rescinded. *Communication Personnel.*

26. Radio Nets, Medium Tank Company, Armored Division (figs. 10 and 11)

* * * * * * *

h. (Added.) *Net Used by Supporting Army Aircraft.* When Army aircraft operate with the tank company, FM radio (AN/ARC-44) provides FM channels within armor, infantry and artillery frequency bands. Both vehicular and portable FM radios net with the AN/ARC-44. Supporting Army aircraft usually operate within the tank company command net.

51. Distribution of Fire

Unless the fire * * * and volume of fire. For methods of attacking targets, see FM 17-12 and appropriate tank manuals. The following factors are considered:

* * * * * * *

59. Tank Versus Tank—Weapons and Ammunition

a. If the guns * * * tank if possible. If WP is not available, tanks may fire HE.

*   *   *   *   *   *   *

61. Supporting Arms and Weapons in Tank-Versus-Tank Action

*   *   *   *   *   *   *

b. Armored Infantry.

*   *   *   *   *   *   *

(2) (Superseded.) Small detachments of armored infantry, armed with rocket launchers and antitank rifle grenades, may operate from strong buildings or tank-proof ground to secure the flanks of friendly tank units. Such detachments may even advance on enemy tanks by covered or concealed routes.

*   *   *   *   *   *   *

69. Tank Company and Platoon—Advance Guard

Figure 45. Rescinded. *Typical order of march, leading tank platoon of advance guard.*

*   *   *   *   *   *   *

b. For a suggested * * * the main body. The platoon leader of the lead platoon places himself where he can best cope with any arising situation. Normally "point duty" of the leading element is rotated by tanks within the platoon and by platoons within the company.

*   *   *   *   *   *   *

e. (Superseded.) When advancing on the road, the advance guard normally attacks directly from march columns (pars. 105–108) to destroy enemy forces which attempt to impede its advance. A standing operating procedure, consisting of several simple battle formations, such as used in battle drill (FM 17–1), is useful in dealing with light opposition (fig. 47). This SOP should cover the employment of artillery or mortar support from the main body.

*   *   *   *   *   *   *

Figure 48. Rescinded.

h. Rescinded.

*   *   *   *   *   *   *

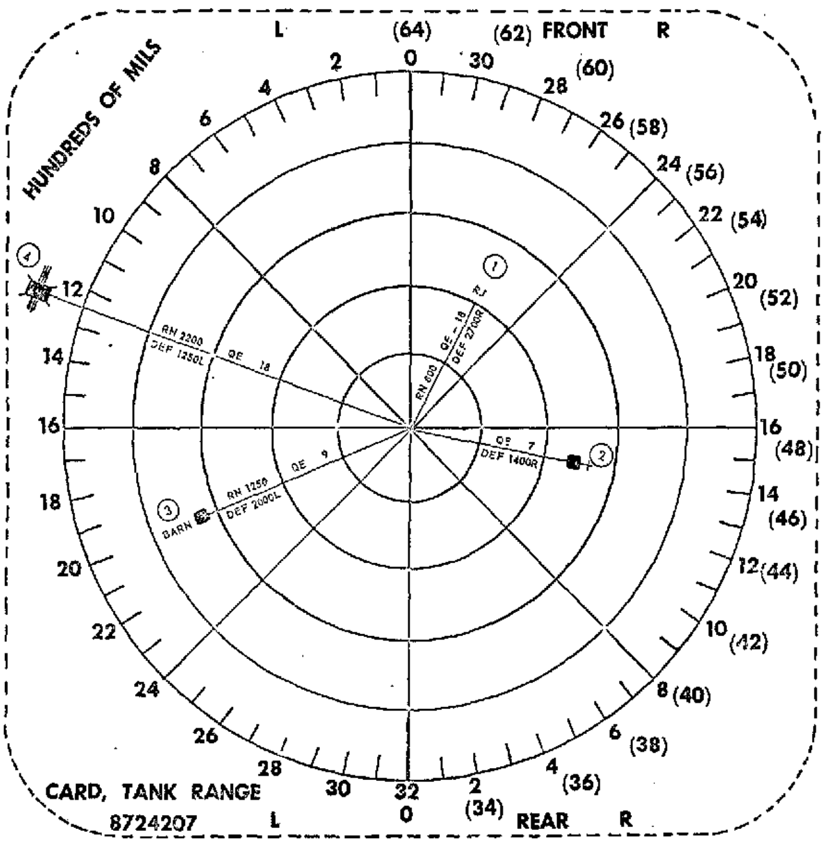


Figure 52. (Superseded.) *Circular range card.*

74. Employment of Patrols

a. (Superseded) Patrols are small tactical units employed to gain information and to insure security (FM 21-75). A tank cannot be used where stealth is desired. In some fast-moving fluid situations, tank units can be used to advantage in patrols, for example, when it is necessary to establish physical liaison with an adjacent unit and the area to be moved through contains enemy forces. Tank units participating in patrol actions should be tactically self-sufficient and prepared to engage in combat operations to accomplish their mission.

* * * * * * *

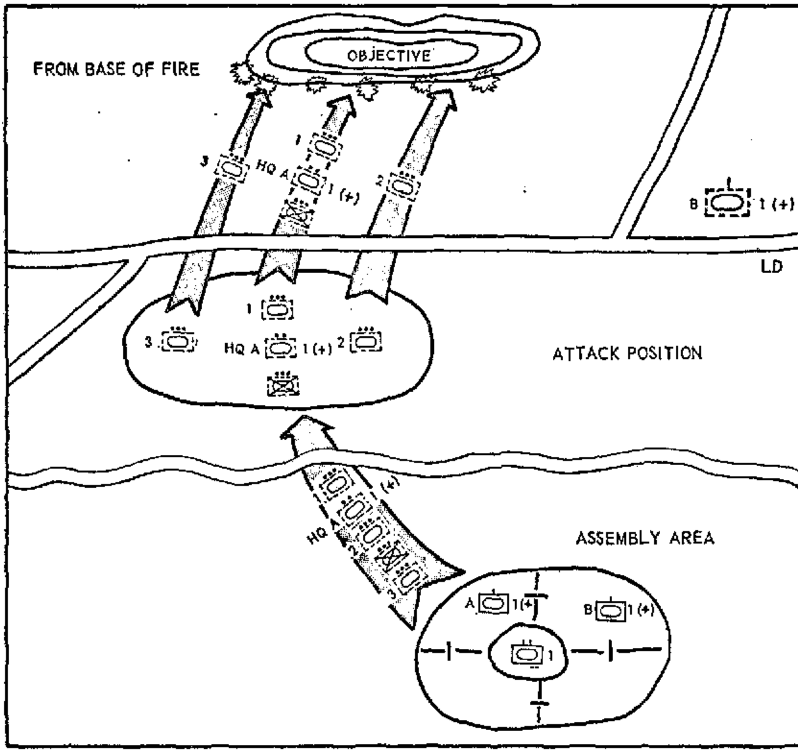


Figure 54. (Superseded.) *Tank company team attack.*

90. Actions in the Attack Position

* * * * * * *

b. (Superseded) Each tank commander must insure that his tank is in the best possible condition before arriving at the attack position. It is essential that each tank be fully supplied with fuel, lubricants, ammunition, and emergency rations and that it have no mechanical difficulties.

* * * * * * *

101. Exploitation—General

(Superseded)

The exploitation, a phase of offensive action, is a followup of success in battle, taking full advantage of the enemy's disorganized state to drive deep into his rear and complete his destruction and defeat. The exploiting force pushes vigorously to reach the objective with the maximum force in the shortest possible time. Objectives deep in the enemy rear normally are assigned to exploiting forces. Pursuit is a phase of exploitation which has as its objective the destruction or capture of enemy forces. See paragraphs 294 through 306, FM 17-1.

109. General

See FM 17-1 for a discussion of considerations peculiar to—

* * * * * * *

a.1. (Added.) Employment of the 18-inch, tank-mounted searchlight in battlefield illumination (par. 311 and app. VI).

* * * * * * *

111. The Armored Division Armor Battalion, 90-MM, in the Mobile Defense

The armor battalion * * * the security force. When the battalion is conducting the defense independently, it may use the techniques of the mobile defense.

116. Preparation of Defensive Position

* * * * * * *

d. Range cards are prepared for appropriate weapons at all positions. When time permits * * * his tank guns. For further discussion, see FM 17-12.

* * * * * * *

117.1 Employment of the Short-Range and Medium-Range Ground Radar

(Added)

See FM 17-1.

125. Armor Battalion Task Force as a Striking Force or as Part of a Larger Striking Force

a. (Superseded) *General.* When the armored division is conducting the mobile defense, a battalion task force given a striking force mission will normally be employed as part of a combat command. When the combat command on an independent mission is utilizing techniques of the mobile defense, a battalion task force may comprise the entire striking force. As such, it * * * normal offensive operations.

* * * * * * *

127. Armor Battalion as Part of a Larger Striking Force

Rescinded.

128. Missions of the Armor Battalion in Position Defense

* * * * * * *

b. In position defense * * * as the reserve. On occasions the battalion may be employed as part of the forces in the battle area. When such instances * * * the armor battalion.

* * * * * * *

133. Forces in the Battle Area

(Superseded)

The forces in the battle area include those elements charged with the immediate defense of the forward edge of the battle area (FEBA). For a discussion of a battalion task force employed as part of the forces in the battle area, see paragraph 383, FM 17-1.

142. General

See FM 17-1 for a discussion of considerations peculiar to—

*   *   *   *   *   *   *

e.1. (Added) Employment of the 18-inch, tank-mounted searchlight in battlefield illumination (par. 311 and app. VI).

*   *   *   *   *   *   *

By Order of *Wilber M. Brucker*, Secretary of the Army:

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USAAMS (10)
USAAVNS (10)
USACMLCSCH (10)
USA QM Sch (100)
USAES (10)
USAIS (50)
USAINTS (10)
USASCS (10)
USATSCH (100)
PMST Mil Sch Div Units (5)
PMST Sr Div Units (5)
PMST Jr Div Units (5)

NG: State AG (3) units—same as Active Army except allowance is 2 copies to each unit.

USAR: Same as Active Army.

For explanation of abbreviations used, see AR 320-50.

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FIELD MANUAL No. 17–33

HEADQUARTERS, DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *23 August 1957*

TANK UNITS
PLATOON, COMPANY, AND BATTALION

***This manual supersedes FM 17–32, 7 March 1950, including C 2, 8 October 1952, and C 3, 31 October 1952; and FM 17–33, 22 September 1949, including C 1, 14 May 1951, C 2, 8 October 1952, and C 3, 4 November 1952.**

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CHAPTER 1

GENERAL

Section I. GENERAL

1. Purpose and Scope

a. This manual covers specific doctrine, tactics, techniques, procedures, and organization of all tank units, platoon through battalion.

b. The procedures described herein are intended as guides only and are not to be considered inflexible. Each new situation in combat must be solved by an intelligent interpretation and application of the doctrine set forth herein, and not by blind adherence to any set of rigid rules.

c. This manual must be used in conjunction with FM 17–1. General information contained in FM 17–1 is repeated in this manual only where necessary to insure clarity and understanding. Although this manual deals primarily with tank units, it emphasizes the fact that tanks normally operate in close coordination with other arms, and that success in battle is certain only when all arms and services work together.

d. While the employment of other types of units such as infantry, artillery, engineer, and Army aviation is mentioned in this manual, FM 20–100, and field manuals of the 5-, 6-, and 7-series, should be consulted for the basic and detailed tactics and techniques of these units. In addition to FM 17–1, armor series manuals which supplement this manual are as follows:

FM 17–100, Armored Division and Combat Command.
FM 17–50, Logistics, Armored Division.
FM 17–70, Signal Communication in the Armored Division.
FM 17–20, Reconnaissance Battalion, Armored Division.
FM 17–35, Armored Cavalry Units, Armored and Infantry Divisions.

e. Currently prescribed terminology for tank units differs in several respects from that heretofore used (par. 2, FM 17–1). In conformance with this terminology, the terms *tank platoon*, *tank company*, and *armor battalion* will be used throughout this manual to refer to tank units at the various levels. Where necessary for clarity,

armored division or *infantry division* will be added—as, *armored division armor battalion*, *infantry division tank company*.

f. Unless otherwise specified, the material presented herein is applicable without modification to both atomic and nonatomic warfare. Paragraphs 15 through 18 and 184 through 190 of FM 17–1 provide additional atomic considerations.

2. The Tank in the Armored Division

a. The tank is a weapon which embodies a mounted weapons system designed to execute mounted, mobile operations—on either the offense or defense. Possessed of armor-protected firepower and excellent cross-country mobility, the tank is ideally suited for employment in all types of offensive operations, in execution of the mobile defense, in covering force and retrograde operations, and as a counterattacking force in the position defense. The three major roles of tank units are—

(1) Use in semi-independent missions utilizing great firepower and mobility.

(2) As a part of a combined-arms armor formation to act as the primary mounted weapons system in the conduct of mobile warfare.

(3) Fighting enemy armor.

b. The tank is a weapon of decision on the battlefield. The ease with which the tank can negotiate difficult terrain enables the crew, protected by armor, to maneuver its mounted weapons system from one favorable position to another, influencing the course of an operation in the manner the commander desires. This fast, mobile, armor-protected vehicle is the primary weapon of the armored division.

c. Tank units form the nucleus of the primary striking force of the armored division. In the performance of missions normally assigned to the division, units and elements of the other arms and services found in the division have the basic function of assisting the tank units. The tank must be used to take maximum advantage of its great battlefield mobility. Tank units are normally employed in teams of combined arms; however, they may be employed independently.

3. The Tank in the Infantry Division

The role of the tank in the infantry division is to support the overall division mission. It is used in the greatest possible concentration consistent with the situation. Divisional tank units may be reinforced by, or may be used to reinforce, other elements of the division. These tank units increase the strength and firepower of the attack and counterattack, exploit successes, and add depth to the antitank defense. See chapter 6.

4. The Tanker

The individual soldier in a tank unit must be indoctrinated with the spirit of the offensive. His thinking must be geared to the speed and violence of armored warfare. He is trained to operate deep in hostile territory; the presence of the enemy to his front, flanks, and rear is a condition to be expected. He must develop a spirit of daring which will insure effective engagement of the enemy in this type of operation.

5. Tank Crew Teamwork

a. The tank crew is a tightly integrated team. While all members have certain primary duties, it must be emphasized constantly, in training and in battle, that success is entirely dependent upon their effectiveness as a crew. They must work together in the maintenance and servicing of their tank. They must function as one in combat, responding swiftly, automatically, and efficiently to each new situation.

b. The efficiency of the tank crew can be improved greatly by training each crew member in the duties of the others, to the limit of the time available and the capacity of the man. This should be done as soon as he has mastered his primary duties.

c. For details concerning crew drill and service of the piece, see FM 17–12 and FM 17–79.

6. Mission and Capabilities of Tank Units

a. Mission. The mission of tank units is to close with and destroy enemy forces, using fire and maneuver in coordination with other arms.

b. Capabilities. Tank units have the following capabilities:

(1) Attack or counterattack under hostile fire.
(2) Destroy enemy armor by fire.
(3) Support infantry or other tanks by fire and maneuver.
(4) Rapidly exploit at breakthrough.
(5) Rapidly exploit the effects of atomic weapons.
(6) Conduct independent operations for limited periods of combat.
(7) Pursue and destroy the enemy.
(8) Conduct retrograde operations.
(9) Defend, using the principles of mobile defense.
(10) Seize and assist in holding terrain.
(11) Participate in covering force action.

7. Legend for This Manual

Figure 1 gives the symbols most frequently used in illustrating this manual.

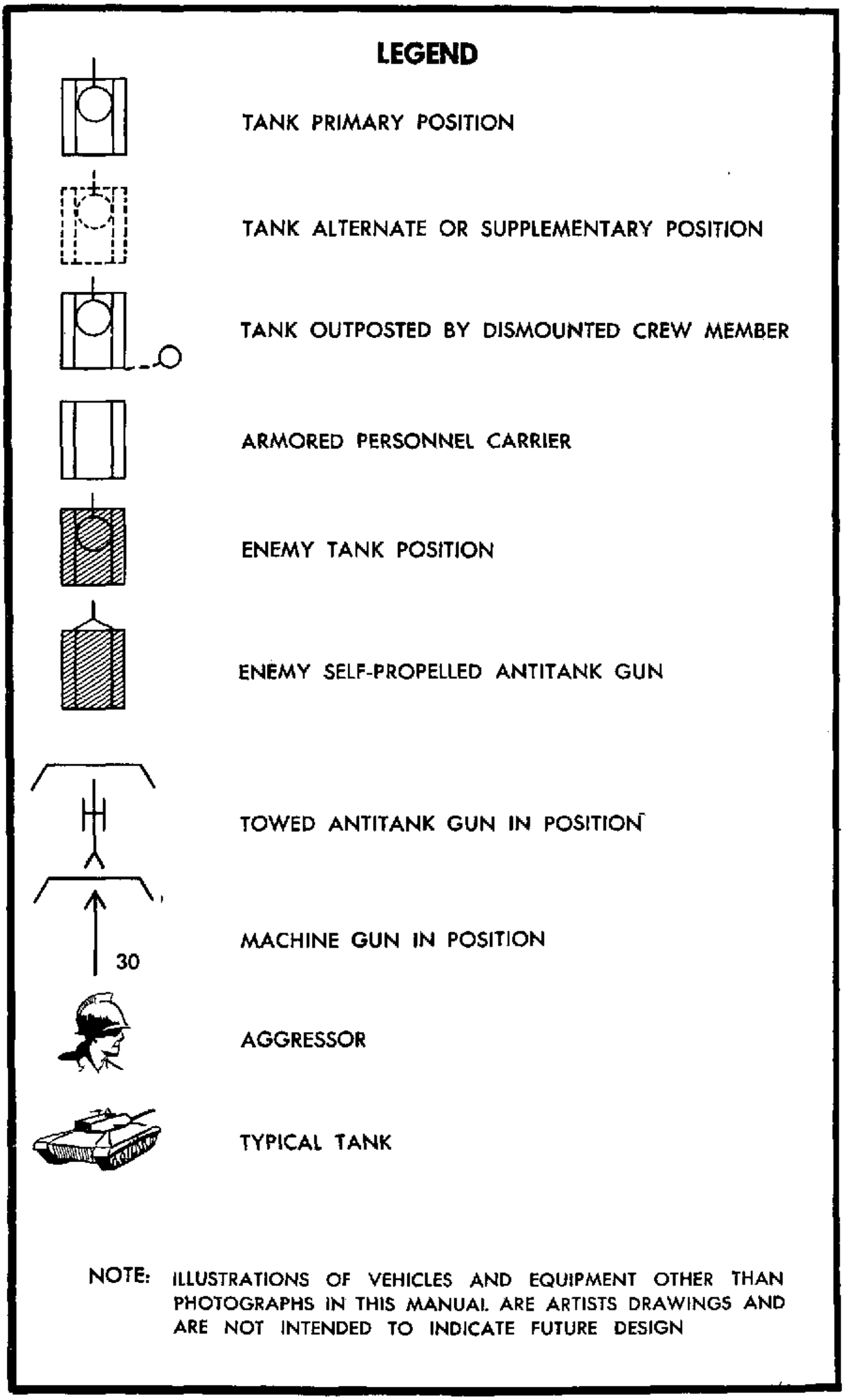


Figure 1. Symbols used in manual.

Section II. ORGANIZATION, ARMORED DIVISION ARMOR BATTALION, 90-MM

8. General

The armored division armor battalion consists of a headquarters and headquarters company and four medium tank companies (fig. 2). There are four of these battalions in the armored division.

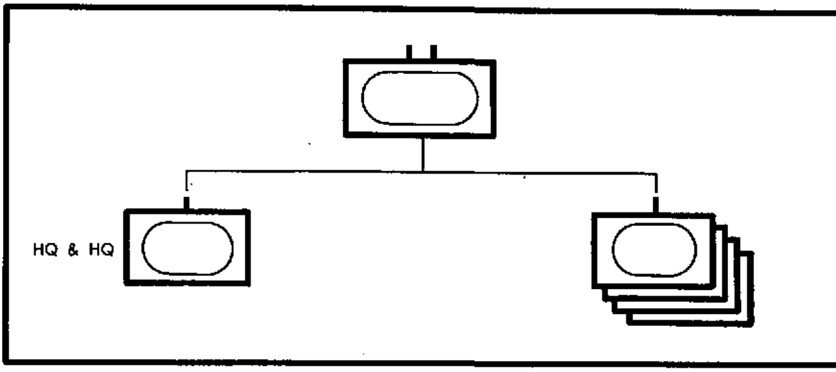


Figure 2. Organization, armored division armor battalion, 90-mm.

9. Headquarters and Headquarters Company

The battalion headquarters contains the battalion commander and his staff. The headquarters company contains a company headquarters, a battalion headquarters section, a headquarters tank section, a battalion scout platoon, a battalion communication platoon, a battalion mortar platoon, a battalion support platoon, a battalion maintenance platoon, a battalion medical section, and a battalion personnel section (fig. 3).

10. Battalion Headquarters

The battalion headquarters contains the necessary personnel to command and control the battalion. These are the battalion commander, executive officer, adjutant (S1), intelligence officer (S2), operations officer (S3), S3 air, supply officer (S4), surgeon, chaplain, communication officer, maintenance officer, and sergeant major. For duties and responsibilities of the battalion commander and his staff, see paragraphs 68–89, FM 17–1.

11. Headquarters Company Headquarters

The company headquarters of the headquarters company is organized to provide administrative, supply, maintenance, and mess facilities for the company and for battalion headquarters personnel. It consists of a company headquarters section; an administrative, mess, and supply section; and a maintenance section.

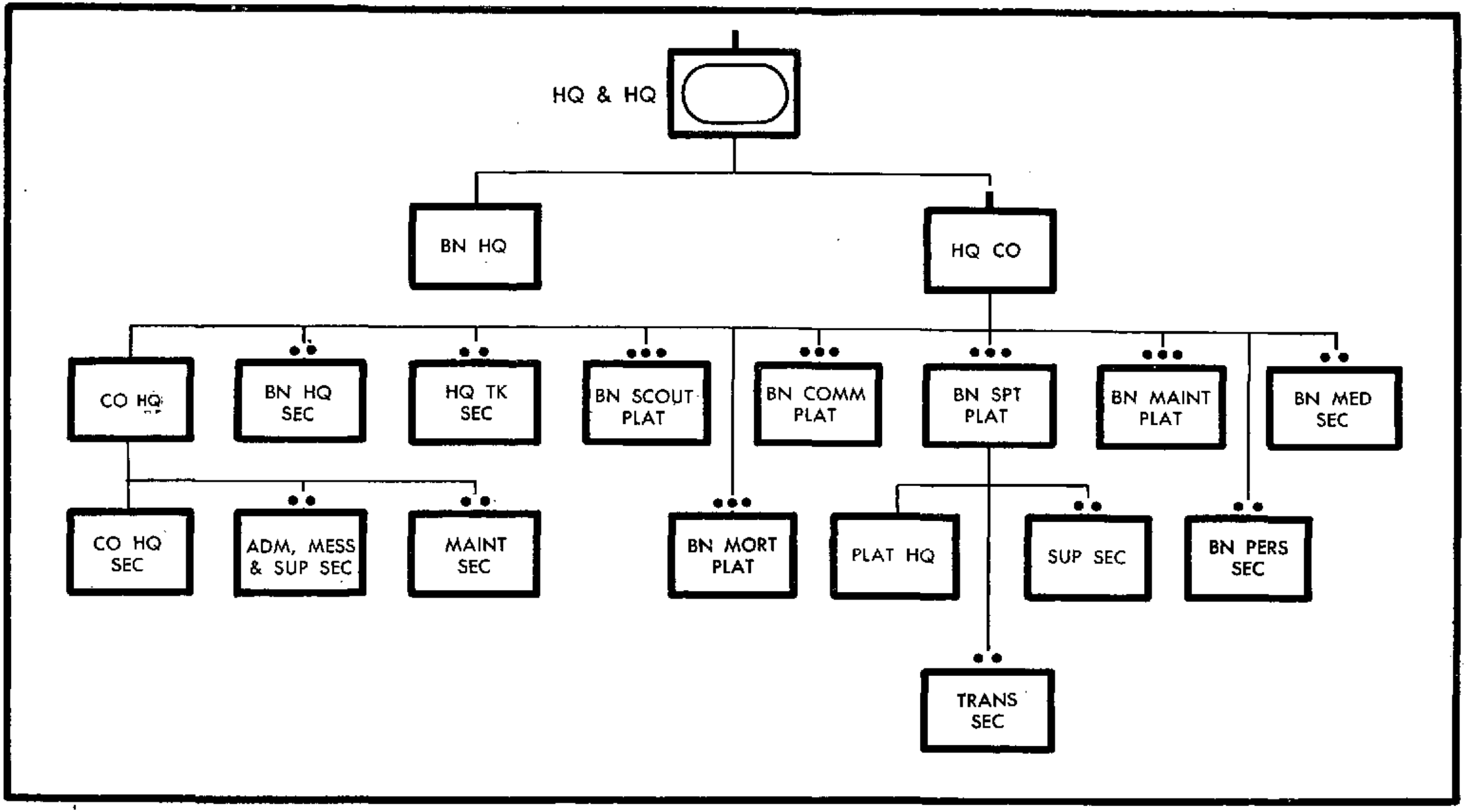


Figure 3. Organization, headquarters and headquarters company, armored division armor battalion, 90-mm.

a. Company Headquarters Section. The company headquarters section includes the company commander, the first sergeant, and a driver. The company commander may be designated as battalion headquarters commandant. He may be required to assume temporarily the duties of any member of the staff.

b. Administrative, Mess, and Supply Section. The company administrative, mess, and supply section prepares administrative data for submission to higher headquarters, and feeds, clothes, and equips personnel of the company. It includes the supply sergeant, mess steward, cooks, company clerk, and drivers. This section is transported in cargo trucks and trailers.

c. Maintenance Section. The company maintenance section is commanded by a warrant officer who is the company maintenance officer. In addition, the section includes the maintenance sergeant and necessary mechanics. This section has the function of keeping all headquarters company vehicles and equipment operating at maximum efficiency.

12. Battalion Headquarters Section

The battalion headquarters section provides the bulk of the enlisted personnel for the staff sections and part of the vehicles and equipment needed for the command and control of the battalion. This section also contains two liaison officers. For their duties see paragraph 88, FM 17-1. Enlisted personnel include an intelligence sergeant, operations sergeant and assistants, chaplain's assistant, mail clerk, clerk typists, and drivers for the section vehicles. Transportation includes armored personnel carriers and necessary general-purpose vehicles.

13. Headquarters Tank Section

The headquarters tank section contains a platoon leader and the necessary enlisted personnel to man the four tanks with which the section is equipped. These tanks are provided primarily for the use of the battalion commander, operations officer, artillery liaison officer, forward air controller (when one is present), and other staff officers as desired. When not otherwise used, tanks of this section may be employed for security of the command post.

14. Battalion Scout Platoon

a. General. The scout platoon (fig. 4) consists of a platoon headquarters and three scout sections. The platoon headquarters consists of the platoon leader, platoon sergeant, and drivers of the two $\frac{1}{4}$-ton trucks. Each scout section consists of two squads. Each squad has six enlisted men mounted in two $\frac{1}{4}$-ton trucks. The section leader commands one squad. The squad leader of the other squad is also the assistant section leader.

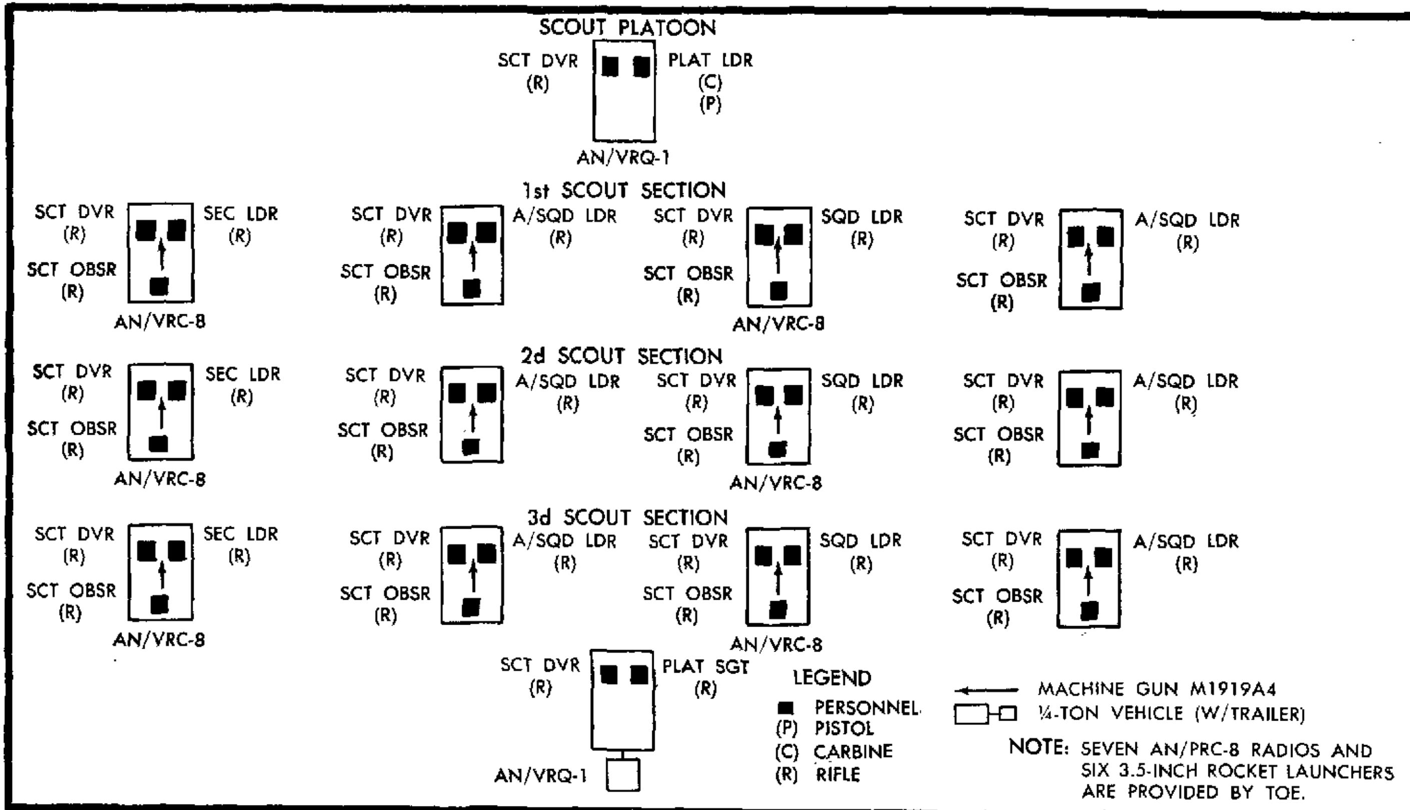


Figure 4. Battalion scout platoon.

b. Mission. The scout platoon performs missions of security and reconnaissance to the front, flanks, and rear of the battalion. It may be reinforced with tanks and armored infantry to enable it to accomplish these missions. In addition, the scout platoon assists in the control of movements of the battalion, or elements thereof, by route reconnaissance, posting of guides and markers, and reconnaissance of assembly areas and attack positions. For details of employment, see FM 17-35.

15. Battalion Mortar Platoon

a. General. The 4.2-inch mortar platoon (fig. 5) has the mission of furnishing close and continuous indirect fire support for the companies of the armor battalion. Normally this platoon is employed directly under battalion control. It is capable of—

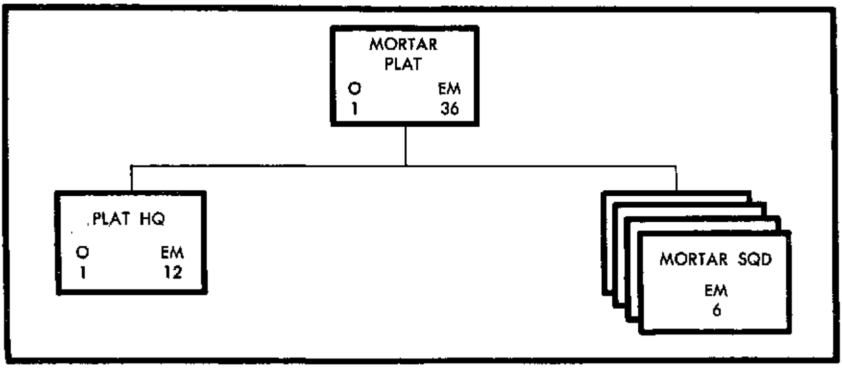


Figure 5. Battalion mortar platoon.

(1) Delivering high-explosive ammunition on area or point targets.

(2) Delivering chemical munitions on area targets.

(3) Providing battlefield illumination.

b. Organization.

(1) The platoon is operationally self-sufficient. It is dependent on its parent company and battalion for logistical and administrative support and, partially, for security.

(2) The platoon headquarters consists of a platoon leader, three forward observer teams, and a fire direction center (FDC), each having its own transportation and communication facilities.

(3) Each of the four mortars is mounted in an armored mortar carrier.

(4) For details of tactical employment of this platoon, see appendix IV, FM 17-1.

16. Battalion Communication Platoon

The battalion communication platoon, commanded by the battalion communication officer, contains sufficient specialist personnel, equipment, and organic transport to provide for the installation, operation, and maintenance of the battalion communication system. Following the instruction of the communication officer, the communication chief supervises the assignment and activities of the platoon's radioteletype and CW radio operators and the message-handling, wire, and maintenance personnel. The platoon is transported in an armored personnel carrier and light trucks. The radioteletype and CW radio operators ride with the staff sections to which they are assigned.

17. Battalion Support Platoon

a. General. The support platoon is organized into a platoon headquarters and two sections: transportation section and supply section. The platoon has the personnel, vehicles, and equipment to furnish the transportation and supply support required by the armor battalion to sustain itself for limited periods of combat. Details of its operations are included in FM 17–50.

b. Platoon Headquarters. Platoon headquarters consists of a platoon leader and driver. The platoon leader controls the battalion field trains. He has radio communication with the transportation section leader and the battalion S4 over the battalion logistical net or, in emergency, over the battalion command net.

c. Transportation Section. The transportation section is organized and equipped with the personnel and trucks necessary to transport that part of the battalion basic load of class V and prescribed load of class III which is carried in the battalion trains, and all other supplies from division distributing points forward. The section leader has radio communication with the support platoon leader and the battalion S4 over the battalion logistical net.

d. Supply Section. The supply section operates under the supervision of the battalion supply warrant officer. The section is responsible for receiving and consolidating supply requests from the companies, preparing all requisitions, and procuring supplies and issuing them to the companies.

18. Battalion Medical Section

The medical section, an integral part of headquarters company, provides unit medical service and medical support for the battalion. It establishes and operates the battalion aid station and provides medical aid-evacuation teams to the companies for emergency medical treatment and evacuation of casualties to the aid station. It assists in technical instruction in first aid, field sanitation, and related subjects, and carries out technical inspections of a medical and sanitation nature. Details of its operation are contained in FM 17–50.

19. Battalion Maintenance Platoon

The battalion maintenance platoon is organized and equipped to perform second-echelon (organizational) maintenance, recovery and evacuation of vehicles, and resupply of parts for weapons and vehicles of the battalion. The platoon is commanded by the battalion maintenance officer, who is assisted by the assistant maintenance officer and weapons maintenance warrant officer. He has radio communication with the battalion S4 and unit maintenance sections, using the battalion logistical net. Details of operation of the maintenance platoon are contained in FM 17–50.

20. Battalion Personnel Section

This section prepares and maintains personnel records, rosters, correspondence, and reports pertaining to personnel matters of the battalion. The personnel section consists of the personnel officer (warrant officer), personnel sergeant, and designated specialists. It relieves the companies of as much paperwork as possible. When the battalion is not engaged in combat operations, this section works under the supervision of the battalion S1. When the battalion is fighting, this section normally operates in the division administrative center under the supervision of the division adjutant general.

21. Medium Tank Company, Armored Division Armor Battalion, 90-mm

a. General. The medium tank company (fig. 6) consists of a company headquarters and three tank platoons of five tanks each.

b. Tank Company Headquarters. The company headquarters contains a headquarters section, a security section, a maintenance section, and an administrative, mess, and supply section.

c. Headquarters Section.

(1) Key personnel in the headquarters section include the company commander, executive officer, first sergeant, and communication chief.

(*a*) For responsibilities of the company commander, see paragraphs 68 through 75, FM 17–1.

(*b*) The executive officer is second in command of the company. He keeps abreast of the tactical situation and must be prepared to assume command at any time. As the company commander's principal assistant, the executive officer supervises the functioning of company service support elements. He handles most of the company administrative details so that the company commander can devote the bulk of his time to operations, training, and discipline. The executive officer also is responsible for the movement, security, and operation of the company command post

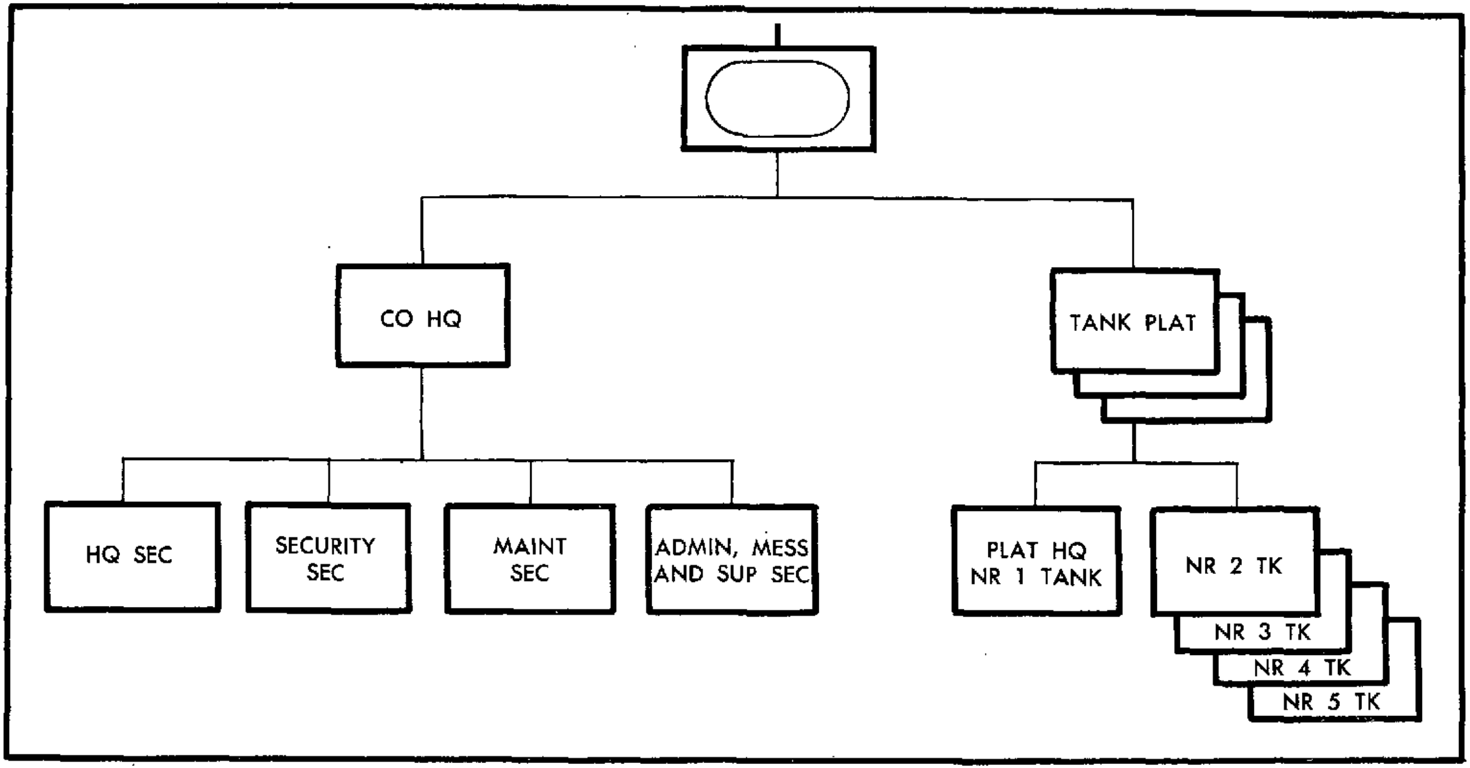


Figure 6. Organization, medium tank platoon and company.

He insures that communication is maintained with the platoons, the company commander, and battalion headquarters. HE IS ALSO THE COMPANY MAINT. OFF. & RIDES IN THE SECTION 1/4-TON TRUCK.

(2) The headquarters section has two tanks. One of these is used by the company commander; the other is available for the use of an artillery forward observer.

(3) When contact with the enemy is not imminent, the company commander may ride in a ¼-ton truck organic to the company headquarters section. When armored infantry are attached to the tank company to form a company team, the ¼-ton truck may be the best vehicle for the company commander to use in controlling elements of the team. The remaining ¼-ton truck is used by the company executive officer and first sergeant. IT ALSO SERVES AS A MESSENGER TRUCK

d. Security Section. The security section consists of a section leader, 10 security personnel armed with rifles, and a driver for the armored personnel carrier in which the section is mounted. The mission of this section is to form a security force for the protection of company headquarters and to provide replacement tank crewmen. When not immediately required for their primary mission, members of this section may be used to assist personnel in the maintenance section.

e. Maintenance Section. The maintenance section provides organizational maintenance for the company. Its personnel include the company maintenance sergeant and radio, turret, and tracked vehicle mechanics. The extent of its operations during combat is determined by the capabilities of its personnel and the time, tools, and repair parts available. Vehicles requiring extensive repairs that cannot be accomplished at company level are turned over to the battalion maintenance platoon. The maintenance sergeant supervises company organizational maintenance, is in charge of the company reserve of repair parts, and keeps records of all scheduled maintenance. C-1 P2

f. Administrative, Mess, and Supply section. The administrative, mess, and supply section includes the company supply sergeant, company clerk, mess steward, and cooks. On marches when combat is imminent, and during combat, this section is normally placed in the battalion field trains. The supply sergeant, however, may be kept forward with the company to supervise the issuance of supplies received during combat.

22. Medium Tank Platoon

a. General. The tank platoon consists of five tanks, including the platoon leader's tank. The platoon normally operates as a unit; however, it may operate by sections, with one section under the platoon leader and the other section under the platoon sergeant.

Even when it operates by sections, the platoon leader retains control of and responsibility for, the entire platoon whenever possible.

b. Duties of Key Personnel.

(1) *Platoon leader.* The platoon leader is responsible to the company commander for the discipline and training of his platoon, its maintenance and equipment, and its success in battle. He must master platoon and company tactics and prepare himself to meet the many problems of combat leadership. He must be proficient in the employment of the platoon's weapons. Finally, he must know the men of his platoon and be able to earn their respect and command their obedience.

(2) *Platoon sergeant.* The platoon sergeant is second in command of the platoon and is responsible to the platoon leader for the conduct of the platoon. When the platoon operates by sections, the platoon sergeant commands the second section and is responsible to the platoon leader for its tactical employment.

(3) *Tank commander.* The tank commander directs the movement of the tank, the laying and firing of all tank weapons, the maintenance and resupply of the tank, and first-aid treatment and evacuation of wounded tank crew members. He is responsible to the platoon leader for the tactical employment of the tank and the training and discipline of the crew.

(4) *Driver.* The driver drives the tank and is responsible to the tank commander for all vehicular maintenance.

(5) *Gunner.* The gunner may lay and will fire the main tank gun and the coaxial machine gun. He is responsible to the tank commander for the maintenance of those weapons and the anti-aircraft machine gun.

(6) *Loader.* The loader loads the main tank gun and the coaxial machine gun, and stows and cares for their ammunition. He is responsible to the tank commander for maintenance of the tank radio.

Section III. COMMUNICATION, ARMORED DIVISION ARMOR BATTALION, 90-mm

23. General

Definitions, descriptions, and details of signal communication common to all armor units are contained generally in FM 17–1 and specifically in FM 17–70.

24. Communication System, Armored Division Armor Battalion

a. Command Post. The battalion headquarters operations and administrative-logistical armored personnel carriers are normally lo-

cated in the battalion command post area. These vehicles are equipped with medium-power AM and FM radio facilities to assist the battalion staff sections in performing their duties.

(1) The battalion operations section operates in the following radio nets:

(*a*) *Combat command command net RTT.* This net gives the armor battalion command post a long-range link to the combat command command post. It is particularly well suited for the transmission of lengthy situation reports.

(*b*) *Combat command command net FM.* This net provides the battalion commander with means of voice communication with the combat command commander. It is normally used for short command traffic.

(*c*) *Battalion command net FM.* The FM radio facility in the operations command post vehicle is the net control station of the battalion command net. This net links the battalion commander, fire support representatives, the staff, and the companies. The battalion commander uses this net to command and control the companies and attached units.

(2) The battalion S3 air is provided an armored personnel carrier containing a medium-power AM set to communicate with combat command and the division fire support coordination center. This set is used primarily to transmit air request traffic on the division air request net. The vehicle is also equipped with a UHF air-to-ground radio and an FM radio. These two sets may be operated in conjunction with each other, utilizing retransmission. This facility permits the forward air controller with the battalion to communicate with tactical aircraft over any medium-power FM radio in the battalion. An FM back-pack radio is provided for the the use of the forward air controller when dismounted.

(3) The radio in the armored personnel carrier shared by the adjutant and the logistics officer operates in the following nets:

(*a*) *Division logistical net RTT.* This net affords the battalion logistics officer a long-range link with the combat command S4, division G4, and division logistics control center (DLCC). It is used primarily to transmit administrative and logistical traffic.

(*b*) *Battalion logistical net FM.* The FM radio facility in the administrative-logistical armored personnel carrier is the net control station of the battalion logistical net. This net provides the battalion logistics officer with voice communication to the support platoon leader. The com-

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panies operate in this net when required to transmit administrative and logistical traffic.

(4) Battalion liaison officers are equipped to operate in the command net of the unit with which they are performing liaison and within their own battalion command net.

(5) Since the control communication facilities for the battalion, and the terminating radio facilities to combat command, are located in the command post area, it is essential that the command post be sited for good radio communication.

b. Command Group.

(1) The battalion commander and operations officer are equipped with vehicular-mounted, medium-power FM radio equipment that permits them to operate in the battalion command net and the combat command command net FM.

(2) The artillery liaison officer is also equipped with vehicular-mounted, medium-power FM radio equipment to permit him to operate in the battalion command net and a supporting artillery battalion fire direction net. He operates in the battalion command net to coordinate artillery fires with battalion operations. He operates in an artillery fire direction net to determine the availability of artillery fires and coordinate his forward observers.

(3) The forward air controller is equipped with a vehicular-mounted, medium-power FM radio set for operation in the battalion command net. He is also equipped with a UHF ground-to-air radio set for communication in the tactical air direction net. The forward air controller coordinates tactical air support with battalion operations on the battalion command net. He directs air strikes using the tactical air direction net.

c. Radio Nets. Figure 7 shows the sets issued to and typical radio net diagrams for the armored division armor battalion. Figure 8 shows a radio net diagram for a typical armor battalion task force.

d. Wire Communication System. The battalion wire system is installed and operated by the battalion communication platoon. This system is installed whenever time will permit and is normally used during periods of radio silence, in defensive or stabilized operations, and in assembly areas. Wire lines are installed to each organic and attached company. Lateral wire lines are installed to adjacent units wherever possible to increase flexibility. Local wire lines are installed to the staff sections as required. Wire lines from supporting units are integrated into the battalion wire system. A wire team from the division signal battalion installs wire lines from the combat command to the battalion. Figure 9 shows a typical wire net diagram for the battalion.

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25. Tank Company Communication System, General

a. Command Post Organization.

(1) When the company is committed to action, the commander normally controls his unit from one of the company headquarters tanks or his ¼-ton truck. He is normally accompanied by an artillery forward observer mounted in the second company headquarters tank.

(2) The armored personnel carrier in company headquarters, which provides transportation for the security section, also serves as the company command post vehicle.

b. Communication Personnel. The company communication chief rides in the executive officer's ¼-ton truck. The company radio mechanic is in the maintenance section.

26. Radio Nets, Medium Tank Company, Armored Division

(figs. 10 and 11)

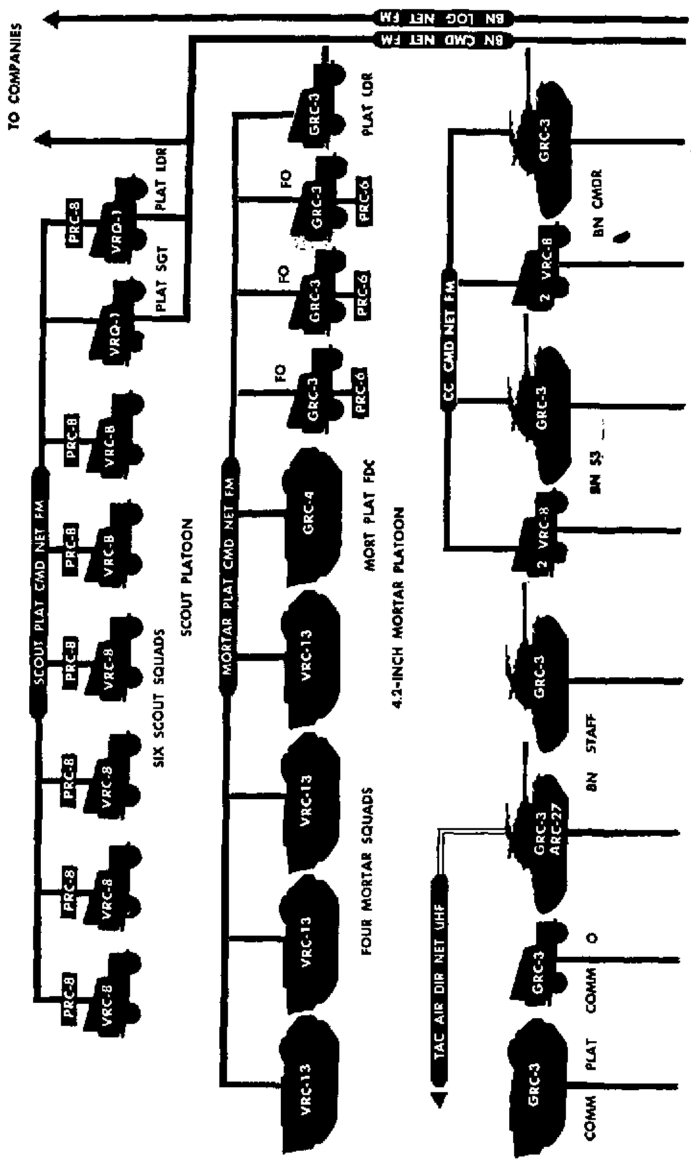
a. Company Command Net. The company commander of a tank company controls his company over the tank company command net (FM). The company commander's tank, his ¼-ton truck, all the platoon leaders' and platoon sergeants' tanks, the executive officer's ¼-ton truck, the security section's armored personnel carrier, and the vehicles of the maintenance section operate in this net, using the medium-power FM transceiver portions of their vehicular radios.

b. Platoon Command Nets. Each tank platoon has its own platoon command net. All tanks of the platoon operate their medium-power FM transceivers on the platoon net.

c. Battalion Command and Logistical Nets. The company commander monitors the battalion command net by using the auxiliary receivers in his tank and his ¼-ton truck. At the company CP, the auxiliary receiver in the security section's armored personnel carrier also monitors this net. The executive officer uses his auxiliary receiver to monitor the battalion logistical net.

d. Nets Used When Tanks Are Attached to Armored Infantry. When a tank platoon is attached to an armored rifle company, the tank platoon leader will direct that the low-power FM transceiver portions of the radios of all his tanks be tuned to the armored rifle company command net. The tank platoon leader may continue to control his platoon on the medium-power transceiver portions of the tank radios, using the frequency of his platoon net or his parent company command net. It should be considered that excessive use of the medium-power transceiver within the platoon on the company command net may interfere with the operation of that net.

e. Nets Used When Armored Infantry Are Attached to Tank Units. When an armored rifle platoon is attached to a tank company, all the tanks operate their low-power FM transceivers on the frequency


TO COMPANIES
BN LOG NET FM
BN CMD NET FM
SCOUT PLAT CMD NET FM
PRC-8
VRC-8
VRQ-1
PLAT SGT
PLAT LDR
SIX SCOUT SQUADS
SCOUT PLATOON
MORTAR PLAT CMD NET FM
VRC-13
GRC-4
GRC-3
PRC-6
FO
FOUR MORTAR SQUADS
MORT PLAT FDC
4.2-INCH MORTAR PLATOON
CC CMD NET FM
2 VRC-8
BN CMDR
BN S3
BN STAFF
GRC-3
ARC-27
TAC AIR DIR NET UHF
COMM O
COMM PLAT

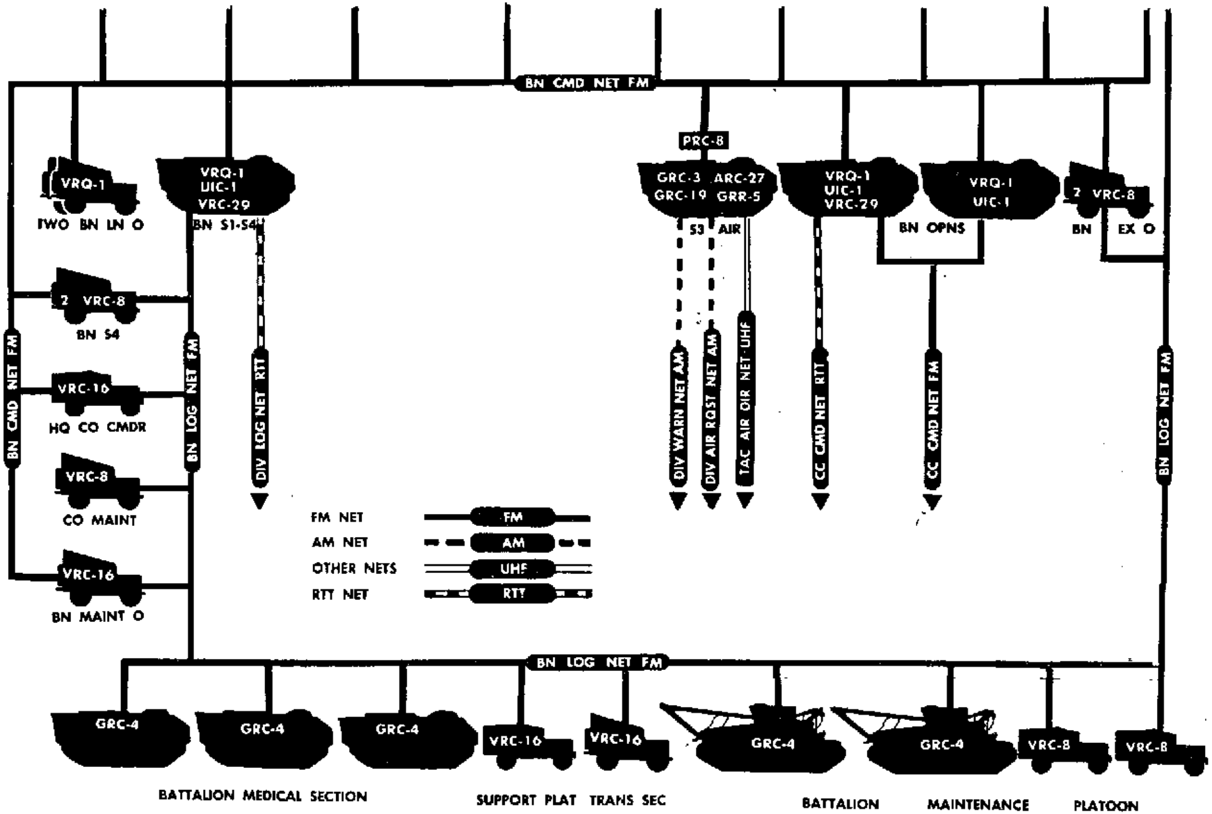
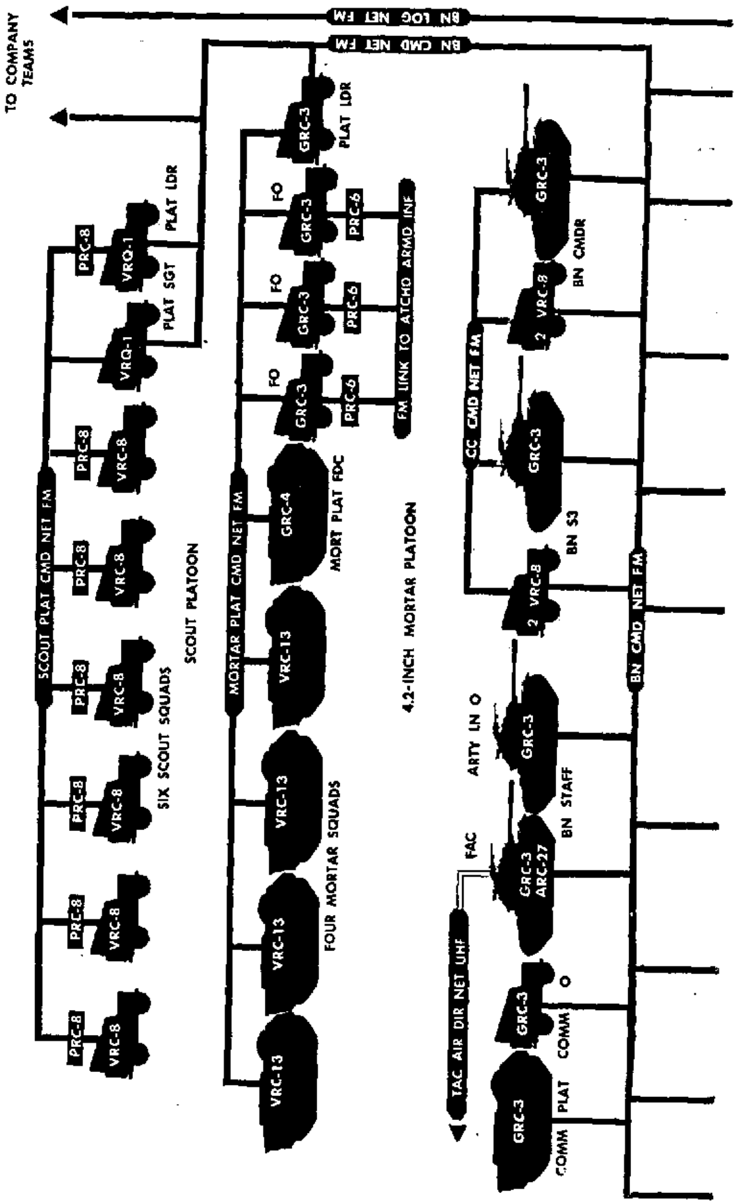


Figure 7. Type radio net diagram, headquarters and headquarters company, armored division armor battalion, 90-mm.



TO COMPANY TEAMS
BN LOG NET FM
BN CMD NET FM
SCOUT PLAT CMD NET FM
PRC-8
VRC-8
VRQ-1
PLAT SGT
PLAT LDR
SIX SCOUT SQUADS
SCOUT PLATOON
MORTAR PLAT CMD NET FM
GRC-3
GRC-4
VRC-13
PRC-6
FO
MORT PLAT FDC
FOUR MORTAR SQUADS
4.2-INCH MORTAR PLATOON
FM LINK TO ATCHD ARMD INF
CC CMD NET FM
BN CMDR
BN S3
ARTY LN O
FAC
GRC-3 ARC-27
BN STAFF
TAC AIR DIR NET UHF
COMM O
COMM PLAT

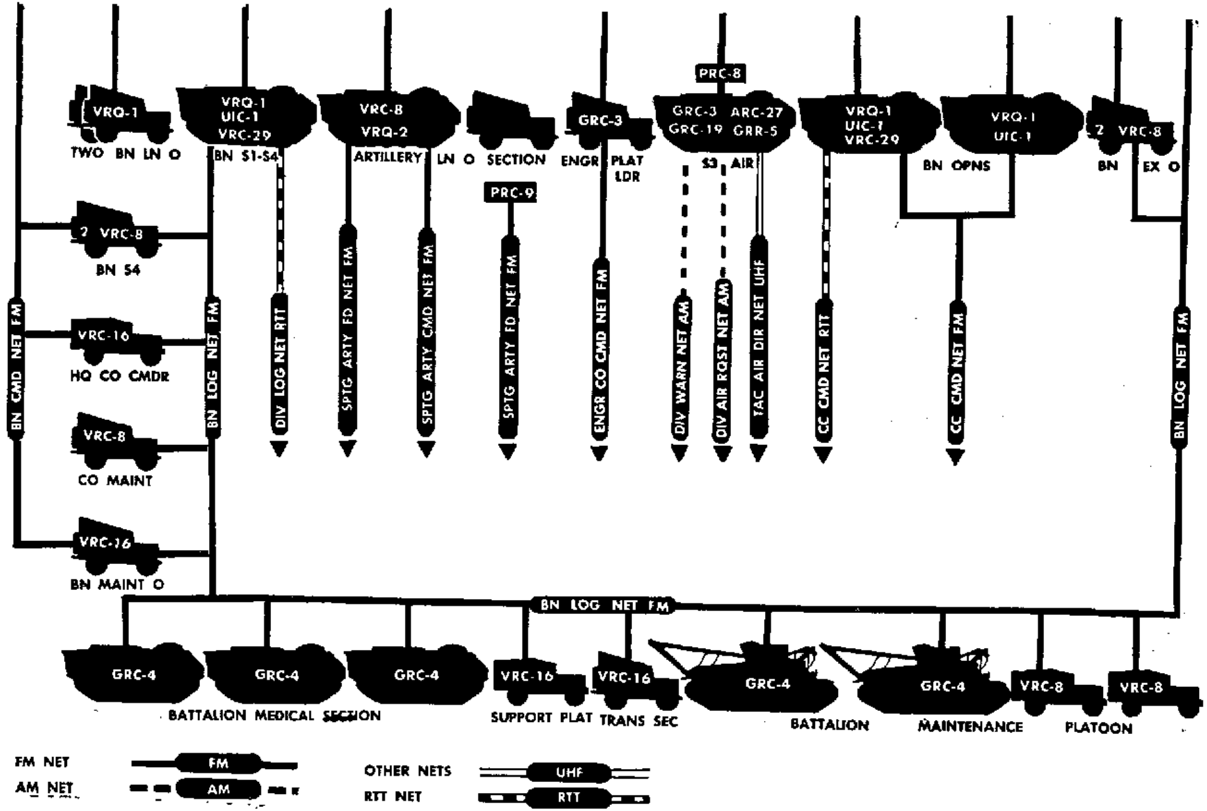


Figure 8. Type radio net diagram, armor battalion task force, armored division.

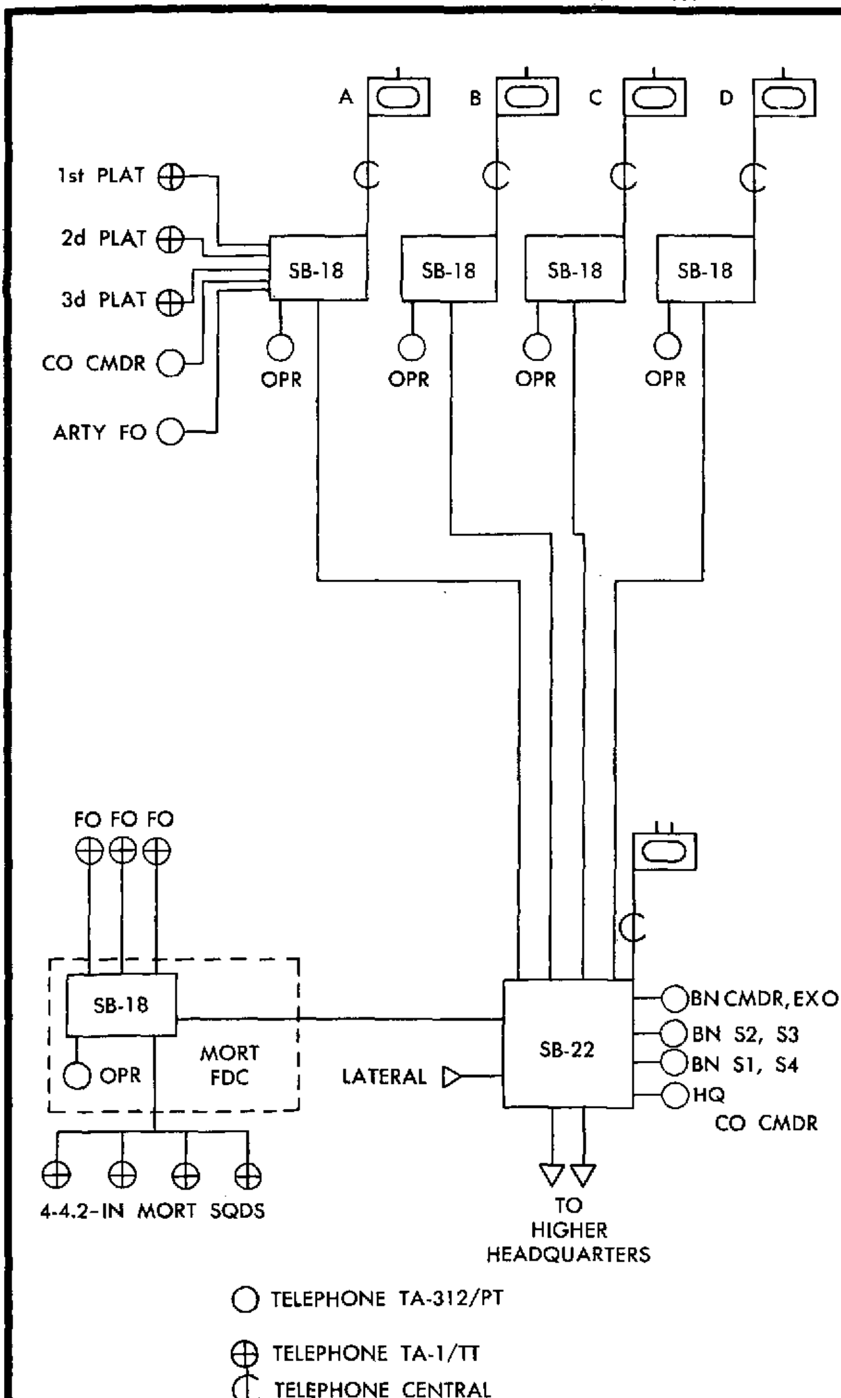


Figure 9. Typical wire nets, armored division armor battalion, 90-mm.

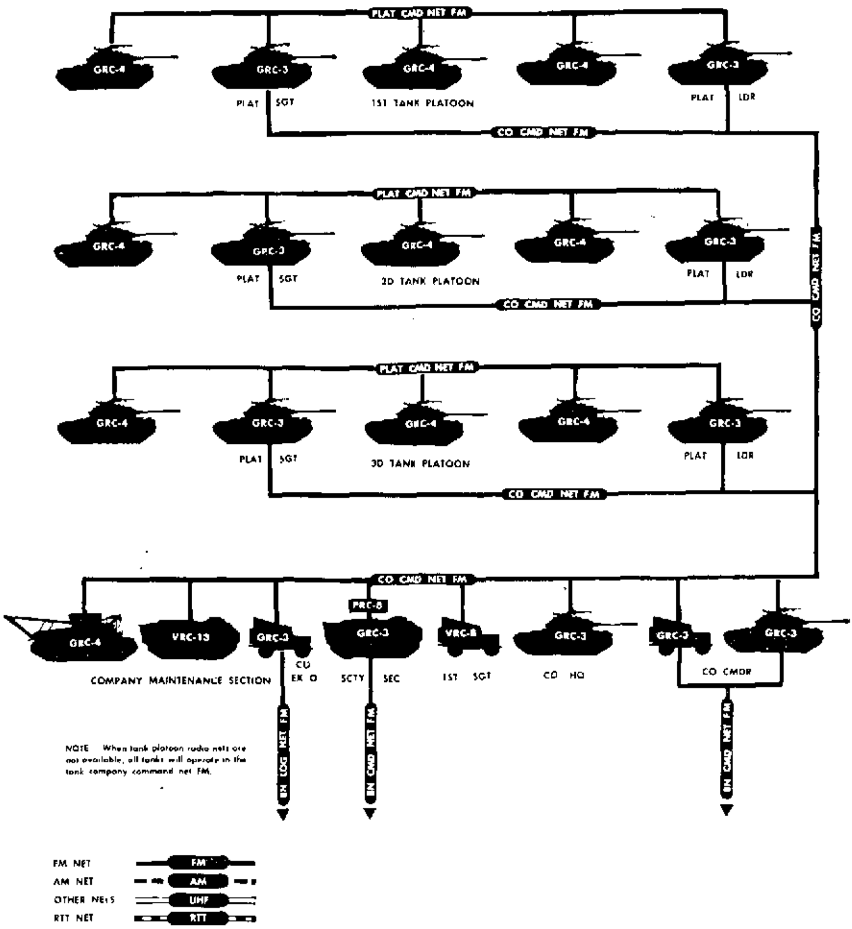


Figure 10. Type radio net diagram, medium tank company, armored division armor battalion, 90-mm.

being used by the armored rifle platoon, while the armored rifle platoon leader tunes his medium-power FM transceiver to the tank company command net. Infantrymen working with tanks can communicate with the tanks by several means (fig. 12), including the external tank interphone. An infantryman desiring to talk with a tank commander removes the interphone handset from its box. If a tank commander wishes to talk to an infantryman, he has the loader flash the red signal light mounted in the interphone box next to the handset.

f. Nets Used by Artillery Forward Observers. When an artillery forward observer operates with the tank company, he communicates directly with his artillery battery or battalion fire direction center, using available radio equipment. He monitors the tank company

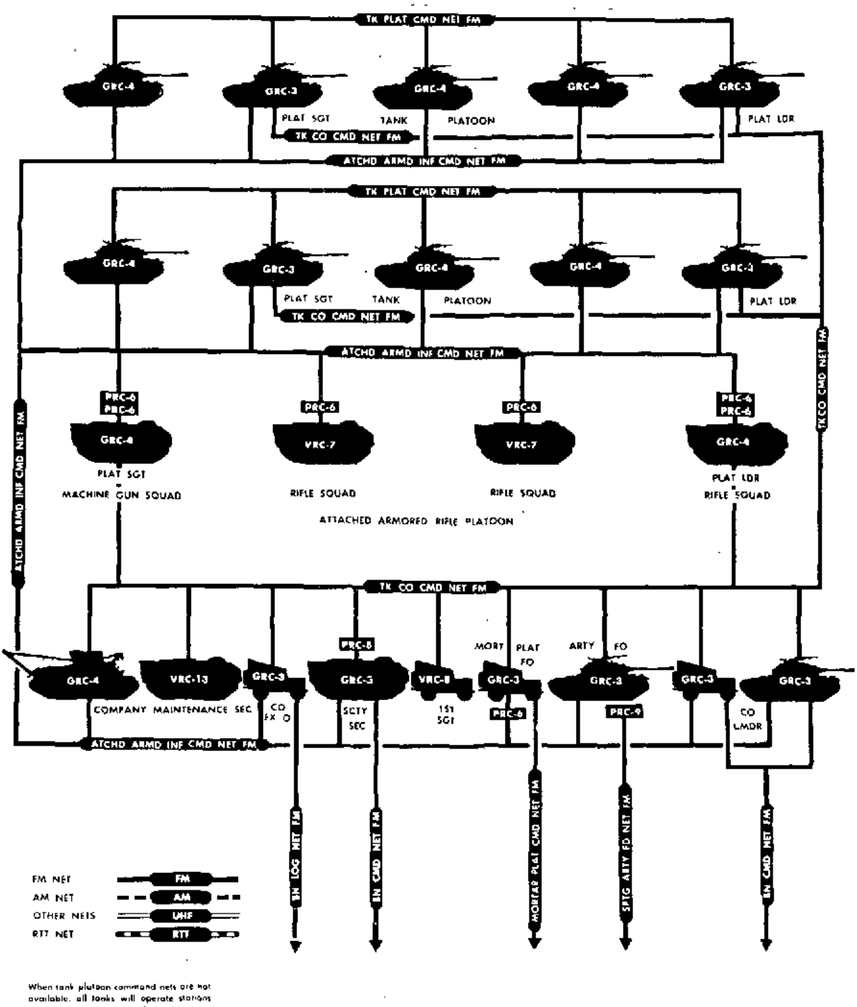


Figure 11. Type radio net diagram, tank company team, armored division.

command net with his auxiliary receiver. His low-power FM transceiver is operated in the net of any attached armored infantry.

g. Security Section Radio Communication. The security section has a backpack FM radio set for use when dismounted. This radio normally operates in the tank company command net.

27. Wire Nets, Medium Tank Company, Armored Division

Because the tank company normally moves so much during combat, it has little opportunity to use wire. However, in bivouac and assembly areas and during conduct of a position defense, wire can be used to advantage. When used, the tank company wire net is installed, maintained, and operated by the company communication

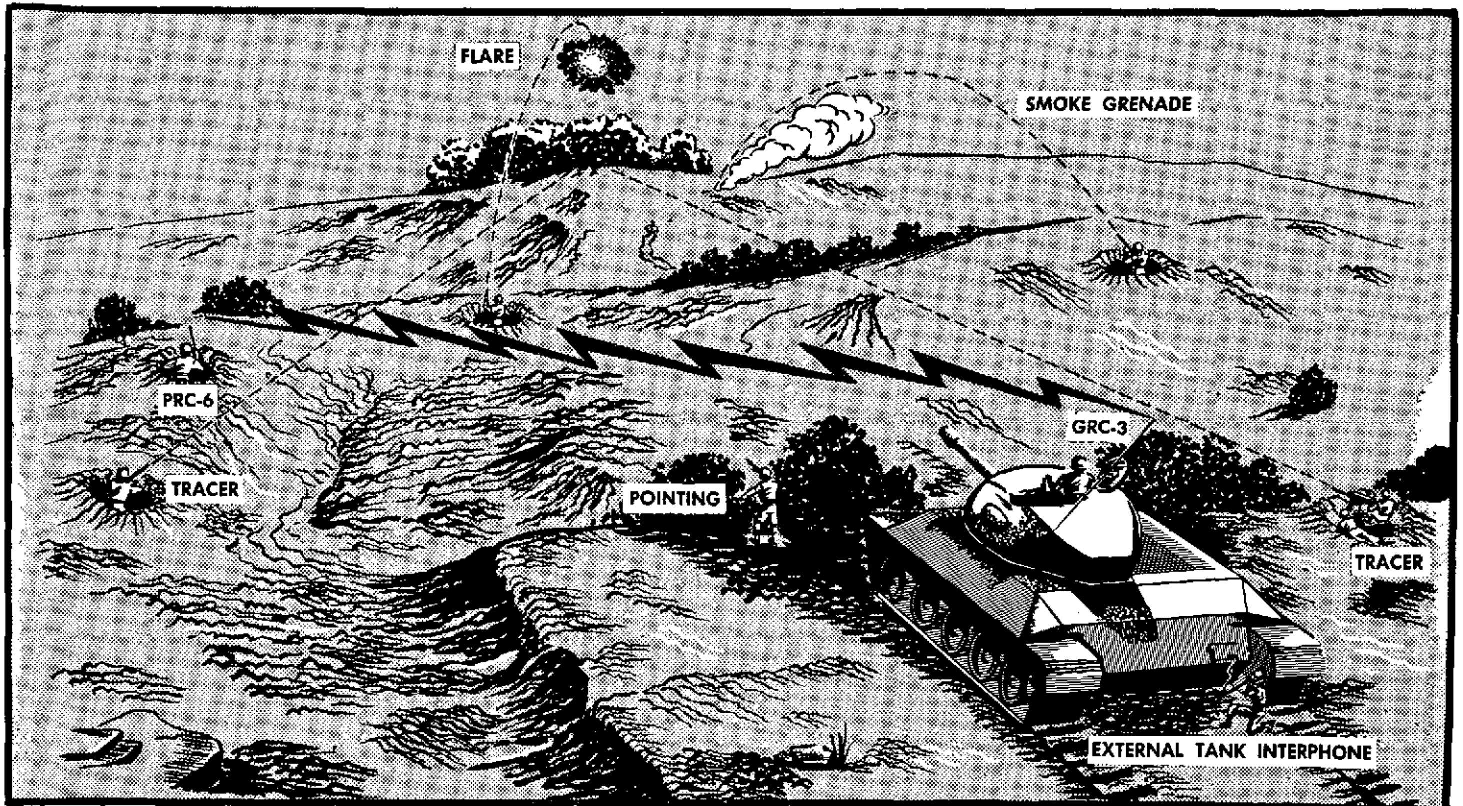


Figure 12. Tank-infantry communication during the attack.

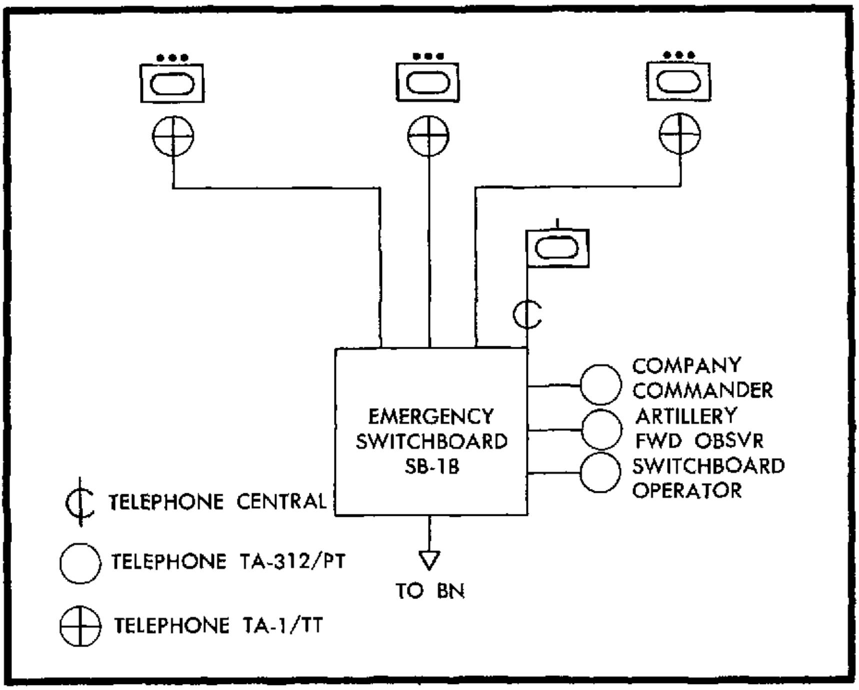


Figure 13. Typical wire net diagram, medium tank company, armored division armor battalion, 90-mm.

personnel. Normally, the switchboard is installed in the company command post. One line is laid to each platoon. The switchboard then ties in to the battalion wire net on lines laid by battalion communication personnel. Three telephones may be installed in the company headquarters area. Figure 13 shows a typical wire net and indicates the equipment used.

28. Liaison by the Tank Company

a. The tank company maintains liaison with adjacent units, supporting or supported units, and higher headquarters, as the tactical situation requires. When a tank unit is attached to another unit, the tank unit commander is responsible for continuous liaison from the time his unit is attached, or alerted for attachment, until it is relieved from attachment. This liaison may be maintained by designated liaison agents or by periodic personal contact between unit commanders (command liaison).

b. A tank company commander normally maintains liaison with his next higher commander by frequent personal contact. At times, liaison with higher headquarters is maintained by use of a qualified noncommissioned officer who is provided with a ¼-ton truck and radio.

c. Army aircraft, when available, may be used to advantage by the company commander in maintaining liaison.

CHAPTER 2

COMBAT OPERATIONS—GENERAL

Section I. ORGANIZATION FOR COMBAT

29. Battalion Task Forces

An armored division armor battalion, 90-mm, may be organized for combat either as a tank-heavy or balanced task force or without attachments. For discussion of battalion task force, see paragraphs 46 through 48, FM 17–1.

30. Employment of Tank Platoons and Companies

The tank platoon is normally employed as a part of the tank company. It may be attached to an armored rifle company. The tank company normally operates as a part of a battalion task force. When suitably reinforced, it is capable of conducting small-scale, semi-independent missions.

31. Tank Company Teams

a. The tank company may be organized as a tank company team (pars. 47 and 48, FM 17–1) by attaching a nonorganic platoon (or platoons) and/or detaching an organic platoon (or platoons). A company team normally is given a designation corresponding to the alphabetical designation of the company forming the nucleus of the team. For example, a company team organized with Company A as the nucleus is designated as Team A or Team ALFA.

b. The company team may be employed alone or as part of a battalion task force. Company teams are formed after a consideration of the factors of METT (mission, enemy, terrain and weather, and troops available). There is no fixed composition for such a team (fig. 14).

c. A company team usually is composed of tanks and armored infantry only. The battalion mortar and scout platoons, and any attached or supporting engineer units, normally are kept under battalion control and assist in accomplishing the battalion (or task force) mission.

32. Platoons in Company Teams

Tanks should not be attached in less than platoon strength. To do so is justified only when the terrain or other conditions are such that

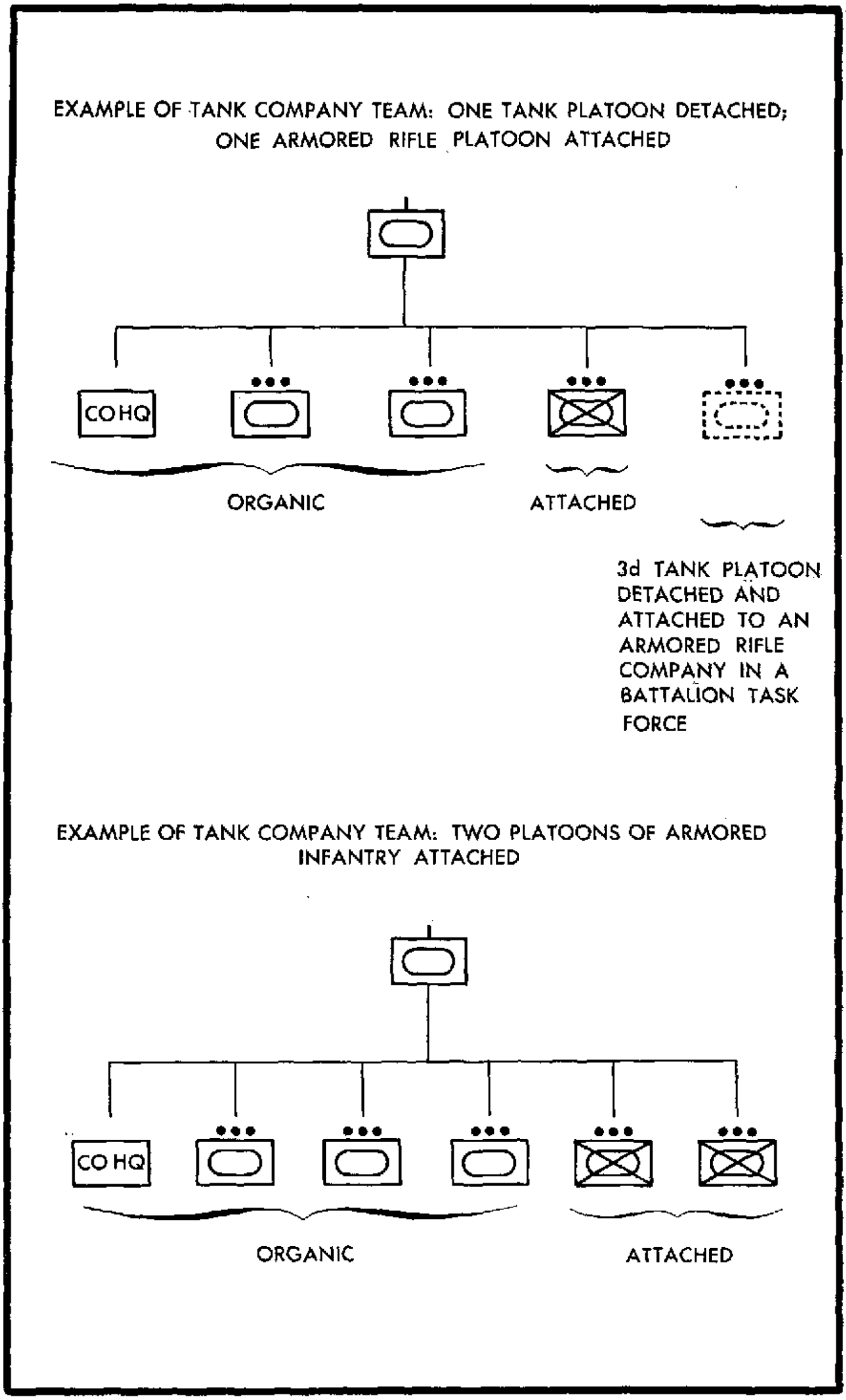


Figure 14. Examples of tank company teams.

a platoon cannot be used effectively. Similarly, armored infantry normally should not be attached in less than platoon strength.

33. Tank Companies Without Attachments

Tank companies are at times employed without attachments, particularly if the battalion (or task force) is operating on a single axis where the commander can closely coordinate all elements of his command. However, armored infantry should be within supporting distance of the tanks.

34. Command of Tank Company Teams

Action between platoons is coordinated by orders to each platoon leader from the company team commander and by cooperation between the platoons. Although not normal, when an armored rifle company, either complete or minus some portion, is attached to a tank company, the armored rifle company is best employed as a unit under its own commander. This insures the best utilization of the armored rifle company headquarters. If the situation demands that portions of the team operate on separate axes, the armored rifle company commander may be placed in command of one portion.

35. Cooperation in the Tank Company Team

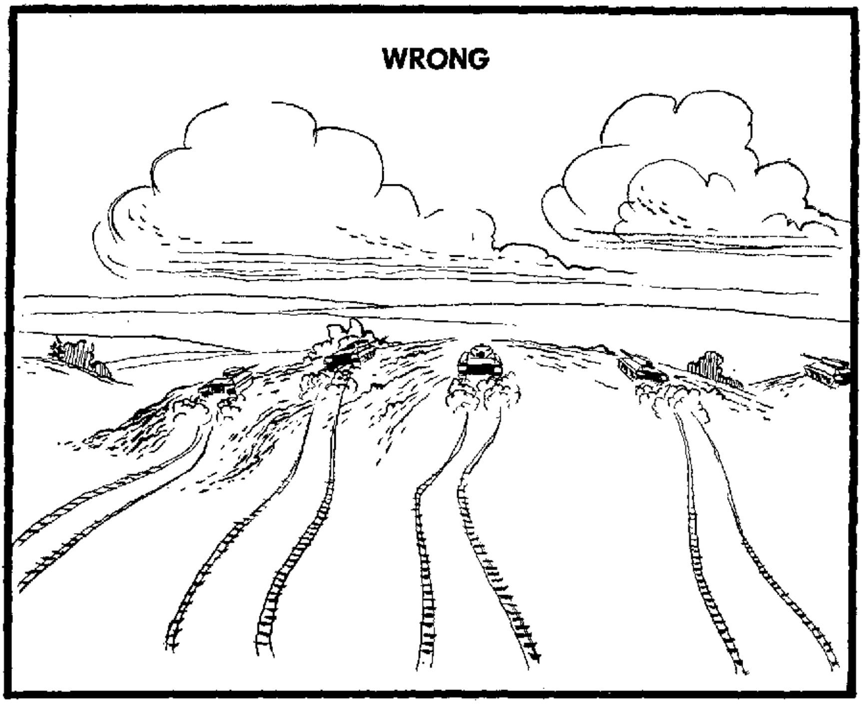
Cooperation within the tank company team is continuous. All leaders study, plan, and prepare ways of coordinating the elements of the team to meet changing battlefield conditions.

a. The role of armored infantry in tank company teams is to assist the advance of the tanks by—

(1) Breaching or removing antitank obstacles.
(2) Assisting in the neutralization or destruction of antitank weapons.
(3) Designating targets for the tanks.
(4) Protecting the tanks against individual antitank measures.
(5) Leading the attack when necessary.
(6) Providing security for tanks.
(7) Mopping up and assisting in consolidation of the objective.
(8) Protecting the tanks in assembly areas and attack positions.

b. The duties of the tank elements in tank company teams are to—

(1) Neutralize or destroy hostile weapons by fire and maneuver.
(2) Clear paths for dismounted armored infantry through wire and antipersonnel minefields.
(3) Neutralize fortified installations with direct fire.
(4) Support by direct fire the advance of the armored infantry, when dismounted armored infantry lead the attack.
(5) Provide antitank protection.
(6) Lead the attack.



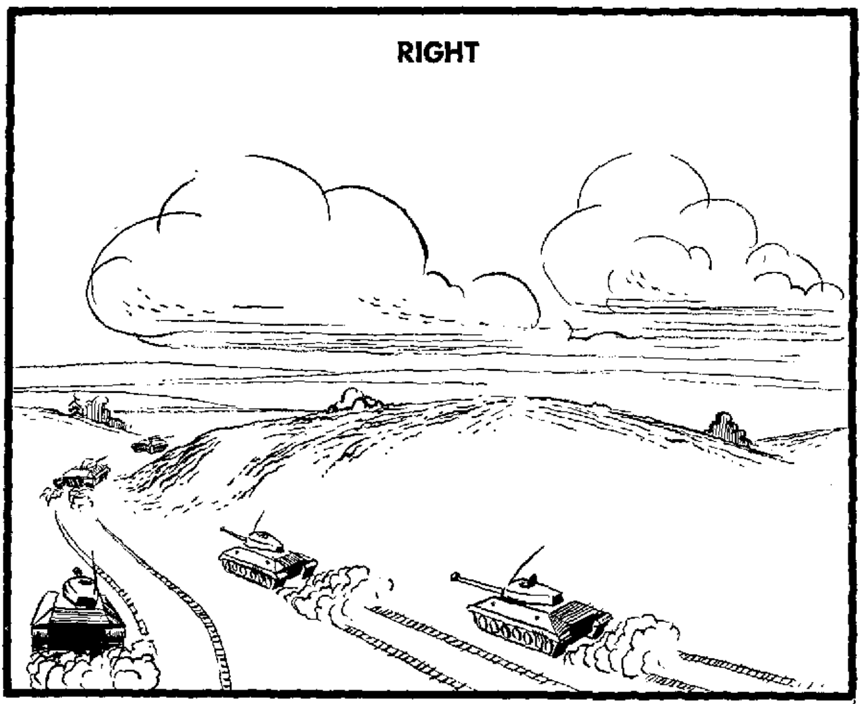


Figure 15. Tanks should move around the shoulders of a hill, using available cover and concealment, while supported by other tanks in firing positions.

Section II. USE OF TERRAIN

36. General

The tank is a desirable target for the enemy. The terrain must be properly used to conceal tanks or to prevent disclosing their positions.

37. Dominant Terrain

Since high ground usually offers observation and fields of fire, its possession frequently is decisive.

a. Before an advance up a valley, the ridges on both sides should be cleared or neutralized by fire. The enemy, if he has free use of the ridges, may encourage such an advance in order to ambush the tanks.

b. Positions on high ground should be selected on either the forward or reverse slope and not on the skyline, where any movement is easily detected. The crest of a hill should not be crossed if it can be avoided. Tanks should move around the shoulders of the hill, using available cover and concealment (fig. 15). If it is necessary to cross the crest, the advance should be made in line formation, supported by other tanks in firing positions (fig. 16).



Figure 16. If it is necessary to cross a crest, a tank unit advances in line formation, supported by tanks in firing positions.

38. Cover and Concealment

Cover is protection from fire; concealment is protection from enemy observation (fig. 17). Cover should be used whenever possible. If there is no cover, the concealment offered by trees, shadows, brush, and houses should be used (fig. 18). Positions behind cover are known as defiladed positions, the degree of defilade depending upon the portion of the tank protected from enemy fire (figs. 19 and 20).

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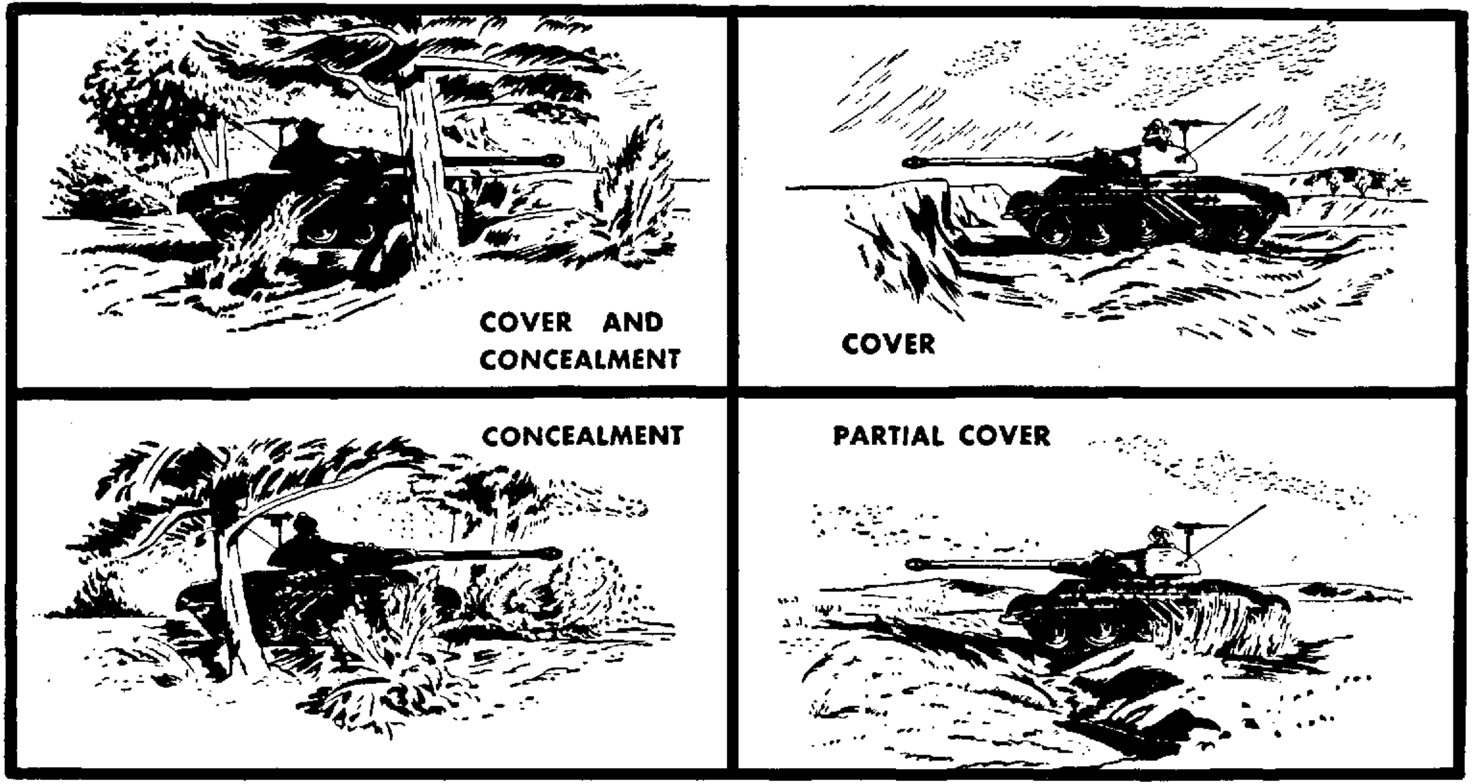


Figure 17. Terrain characteristics in the order of their desirability are cover and concealment, cover, concealment, partial cover.



Figure 18. Brush may give fairly good concealment.

39. Conspicuous Landmarks

Conspicuous landmarks should be avoided, because they attract the enemy's attention. His artillery and antitank weapons will probably have registered on them (fig. 21).

40. Movement From Cover, Concealment, or Defile

The head of a column emerging from a ravine, woods, or other defile should be protected by other tanks, halted in concealed positions to provide fire support (fig. 22).

41. Terrain Which Is Unfavorable for Tanks

Tank unit personnel must learn to recognize unfavorable terrain at a distance (TM 21–306). If the terrain is doubtful, a crew member should be dismounted, under protection of the tank weapons, to see whether the ground is passable for tanks (fig. 23). Accompanying infantrymen may be used to assist in making this reconnaissance and to provide additional protection for the dismounted crewman.

42. Dusty Terrain

Dusty terrain betrays the movement of tanks (fig. 24). Dust can be minimized by slow movement. Once tanks are in the assault position, they must launch their attack rapidly, regardless of dust. Smoke may be used to blind enemy antitank guns and tanks during the movement of the unit.

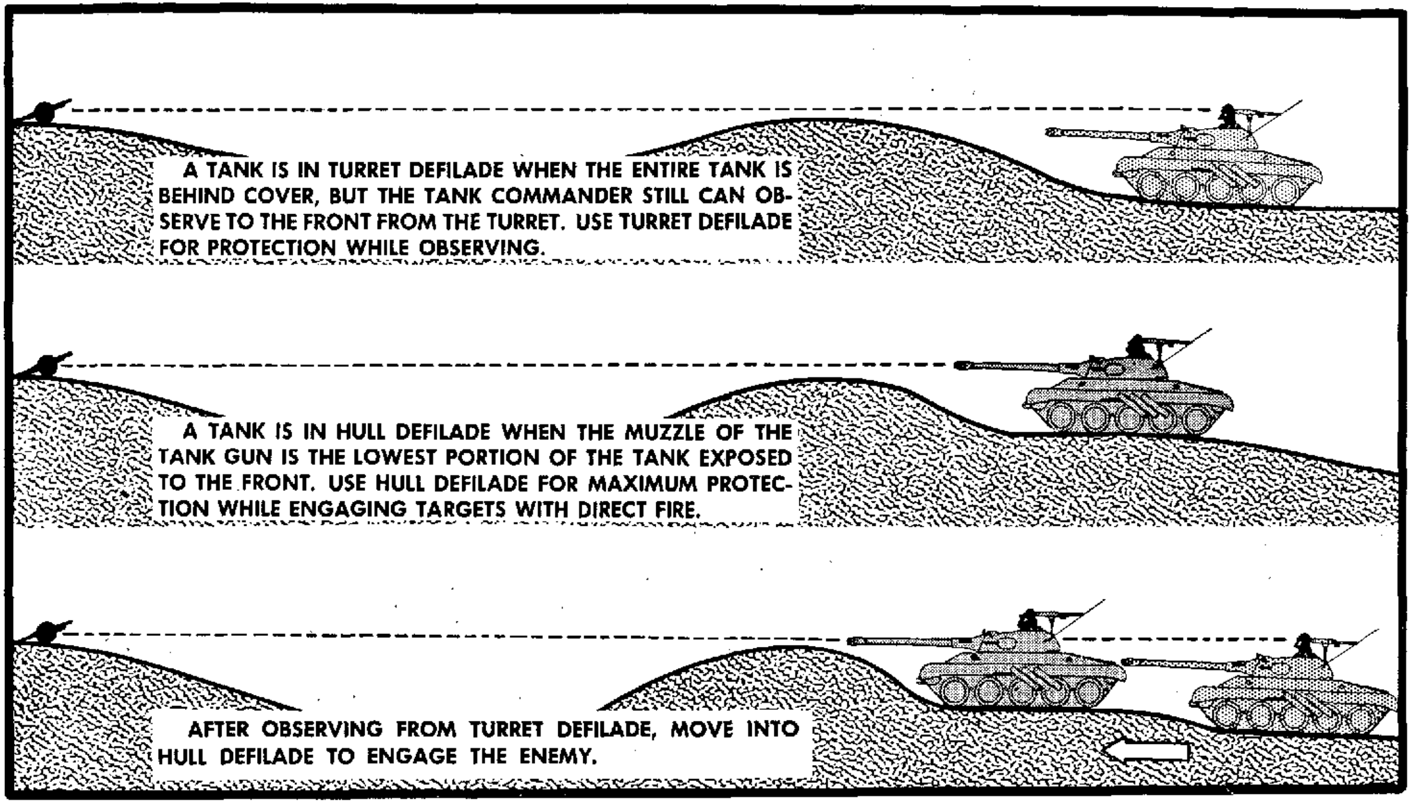


Figure 19. Defiladed positions.

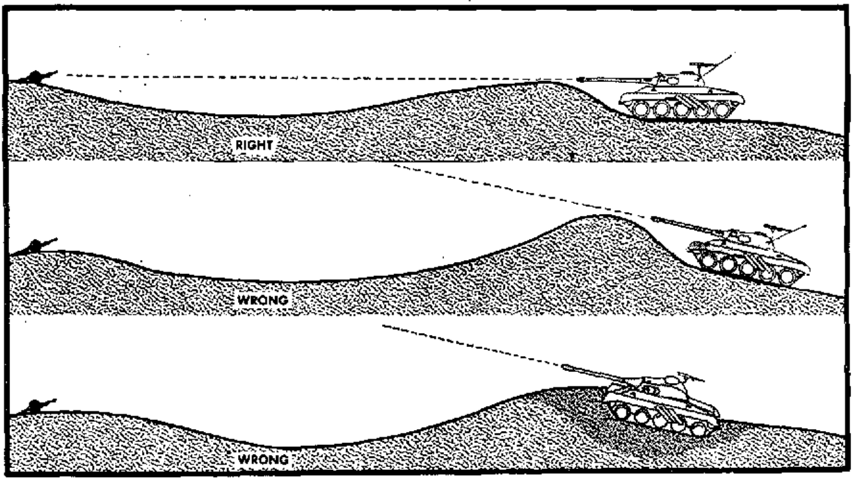


Figure 20. In selecting a hull-defilade position, be sure that the slope is not so steep that the gun muzzle cannot be depressed sufficiently to engage targets. Select a position where the tank does not have an excessive cant or pitch.

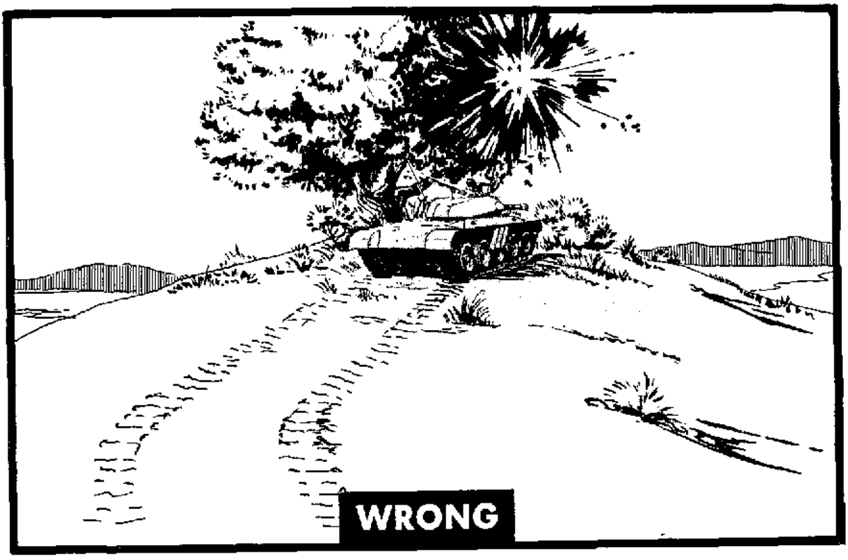


Figure 21. Conspicuous landmarks should be avoided.

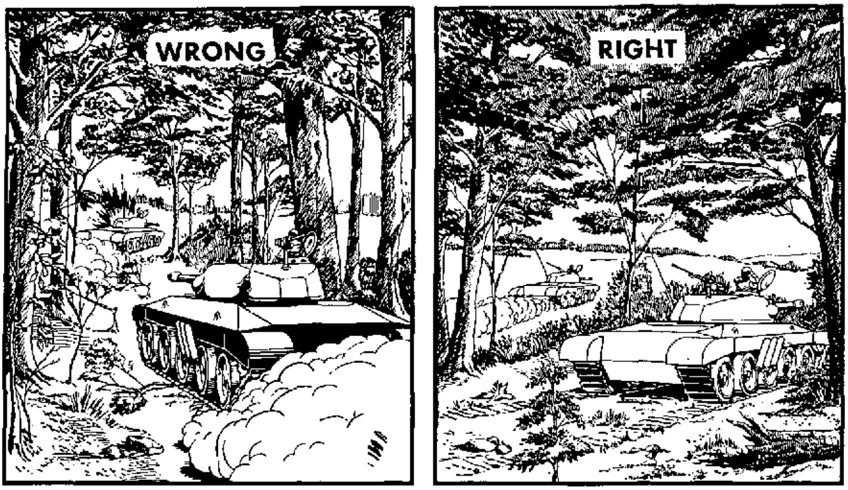


Figure 22. The head of a column emerging from cover, concealment, or a defile should be supported by other tanks, halted in concealed positions to provide fire support.

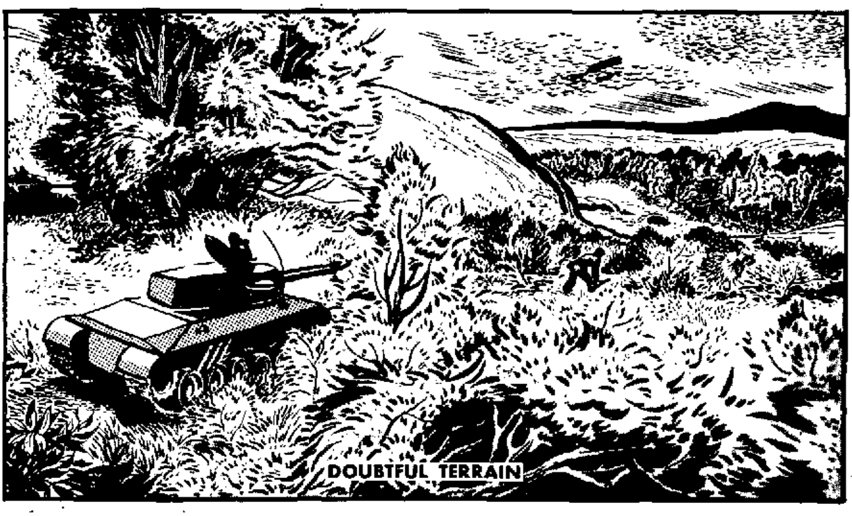


Figure 23. If the terrain is doubtful, a crewmember is dismounted to see whether the ground is passable for tanks.

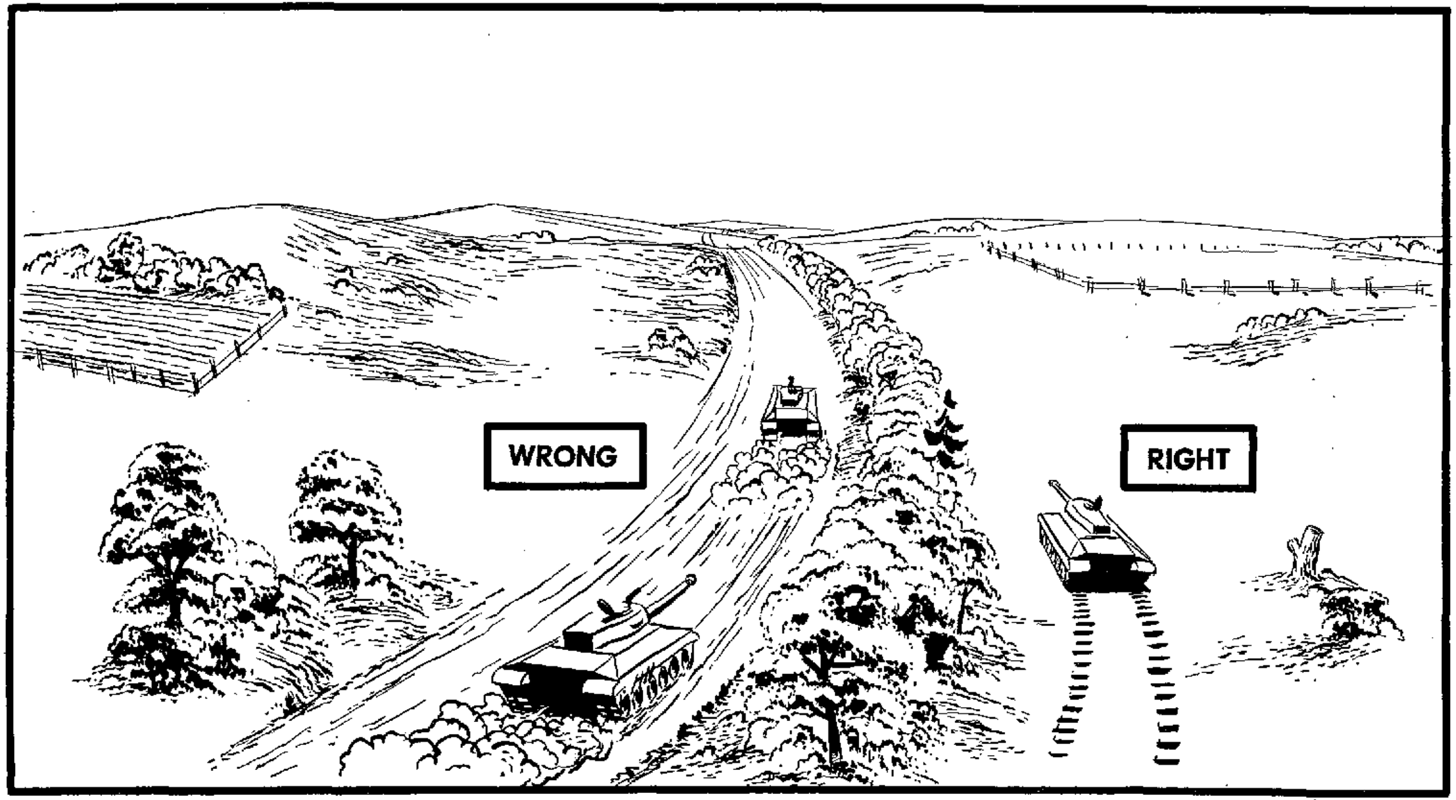


Figure 24. Dusty terrain betrays the movement of tanks and should be avoided where possible.

Section III. COMBAT FORMATIONS

43. Battalion Formations

a. The armor battalion conducts operations in one of two basic battalion formations: line or column. The echelon and wedge formations are variations of the two basic types. The type of formation to be used is determined after a consideration of the factors of METT (mission, enemy, terrain and weather, and troops available). Selection of a formation must be guided by the facts that the objective should be assaulted by as large a force as possible and that the formation must have sufficient depth to maintain the momentum of attack.

b. An armor battalion is in line formation when two or more of its companies are advancing abreast. The battalion is in column when only one of its companies is leading, although following elements may be abreast.

44. Company and Platoon Formations

a. The company formations do not necessarily conform to that of the battalion. Hence, the battalion could be advancing in column and each of its companies could be in line, wedge, or echelon formation.

b. Figures 25 through 30 show typical formations for tank platoons and companies. When the company commander's order does not specify the formation within the platoons, each platoon leader is responsible for the selection of an appropriate formation for his unit.

c. A combat formation is not rigid. The kind of ground, cover, and concealment govern the position of each tank. The company commander and platoon leaders change their positions whenever necessary to improve their observation or control. Visual signals which can be used to control formations are given in FM 21–60.

45. Column Formation

The column (figs. 25 and 30)—

a. Provides good security and permits maximum fire to the flanks, but permits less fire to the front.

b. Facilitates control.

c. Facilitates rapid deployment into any other formation.

d. Is used in approach marches, night movements, and fog, and when passing through defiles or dense woods.

46. Line Formation

The line (figs. 26 and 30)—

a. Permits maximum fire to the front or rear, minimum fire to the flanks.

b. Is more difficult to control than column.

c. Does not provide as much depth as column.

d. Is used by covering forces and units in supporting positions. It should be employed by tanks emerging from smoke, crossing crests, leaving woods, and during the assault of an objective.

e. Permits closing on the objective in minimum time.

47. Wedge Formation

The wedge (figs. 27, 28, and 30)—

a. Permits excellent fire to the front and good fire to each flank.

b. Facilitates control.

c. Permits sustained effort and provides flank security.

d. Lends itself readily to fire and maneuver.

e. Is used when the company commander wishes a deployed formation which still will allow him effective control and maximum flexibility.

48. Echelon Formation

The echelon (figs. 29 and 30)—

a. Permits excellent fire to the front and to the echeloned flank, fair fire to the other flank.

b. Is more difficult to control than column.

c. Permits sustained effort.

d. Is employed to cover the exposed flank of a larger formation, with a minimum loss of frontal firepower.

49. Changing Platoon Combat Formations

Figure 31 illustrates the technique of moving from one combat formation to another. The base vehicle is the only vehicle which should cross in front of another. Individual tanks should make gradual adjustments in their speed and direction to take up their new positions. Halts and abrupt changes of direction should be avoided.

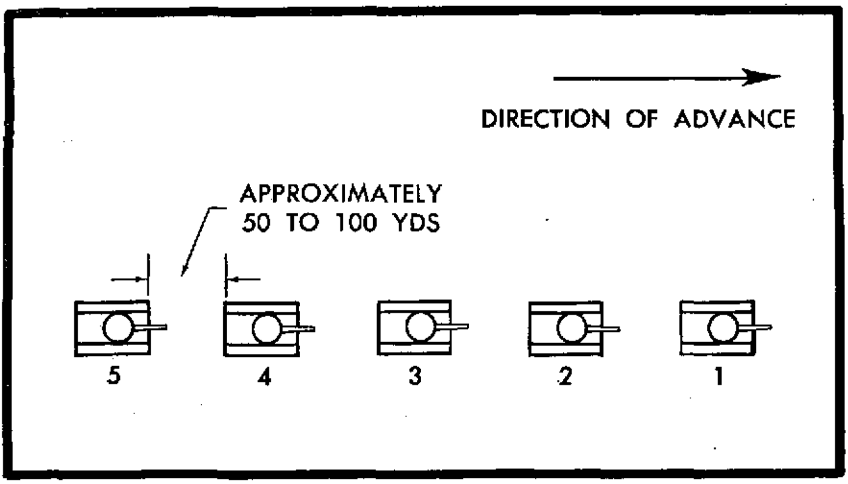


Figure 25. Column formation.

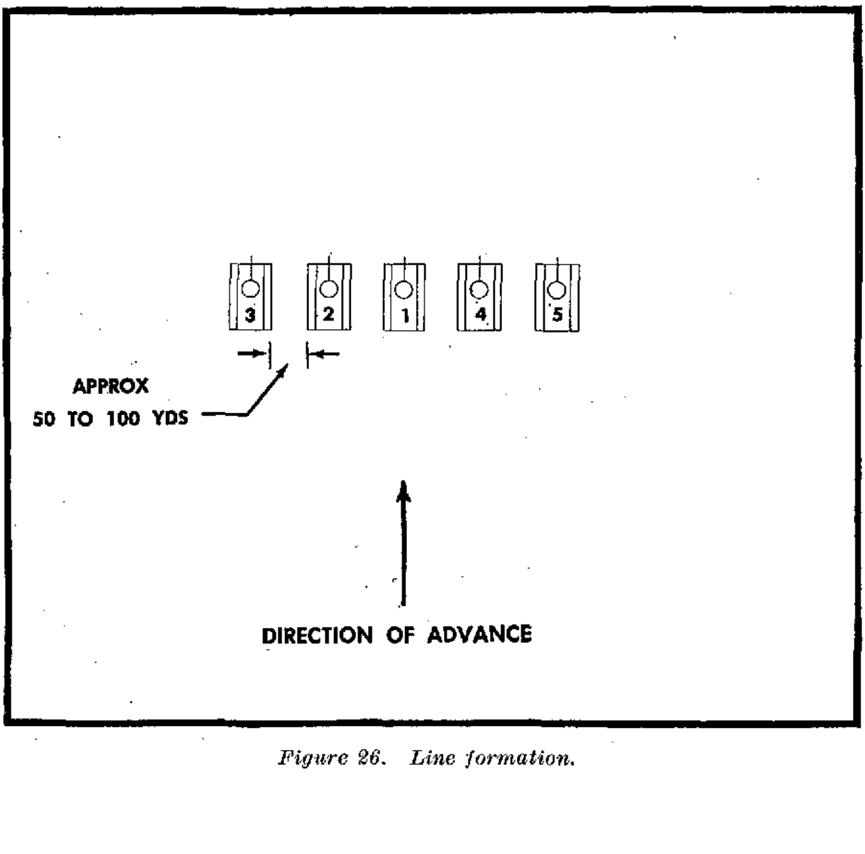


Figure 26. Line formation.

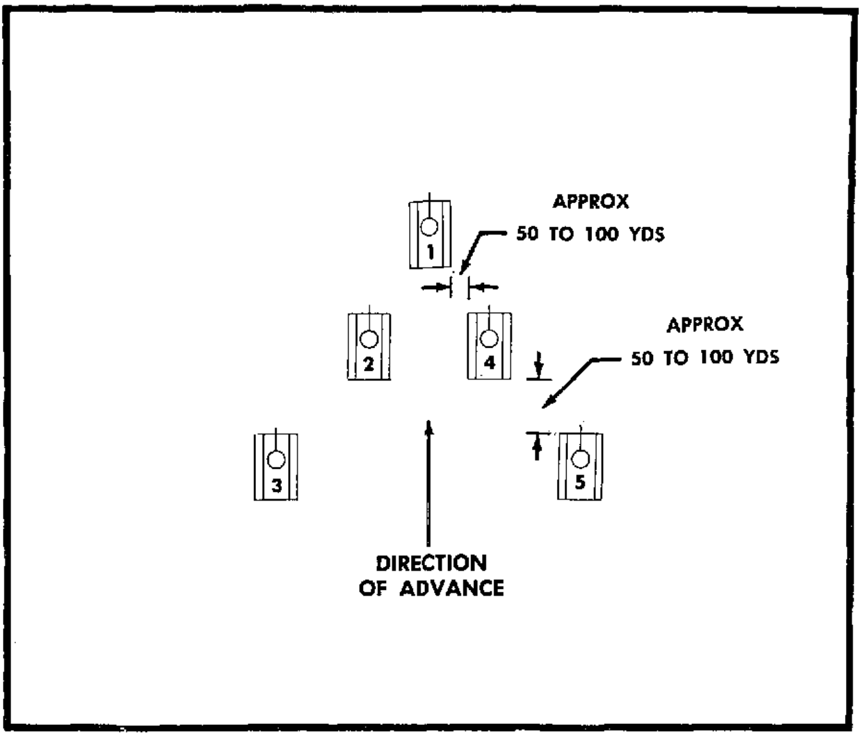


Figure 27. Wedge formation.

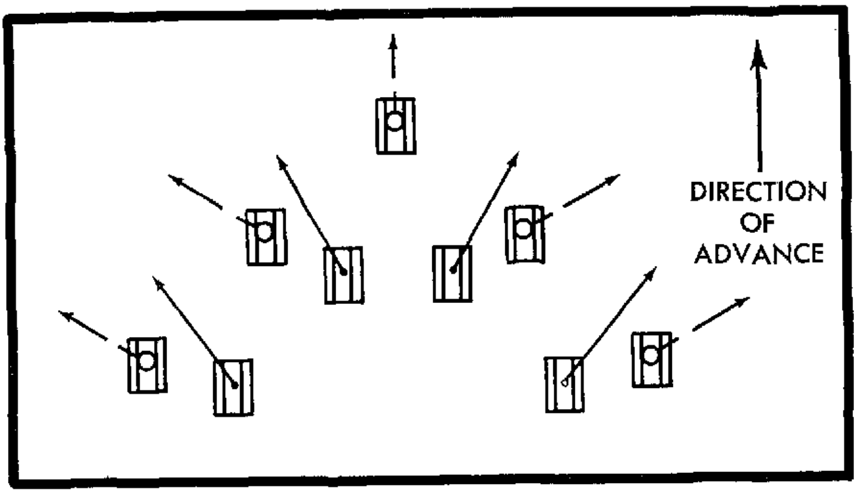


Figure 28. Tank and armored rifle platoons in integrated wedge formation.

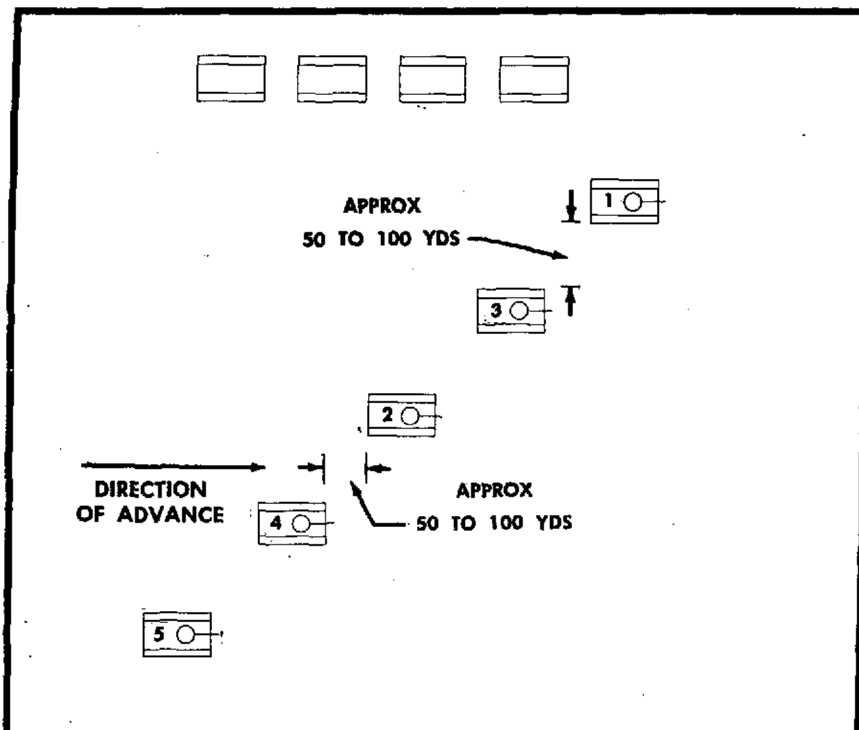


Figure 29. Tank platoon in echelon (right) formation, covering armored personnel carriers in column.

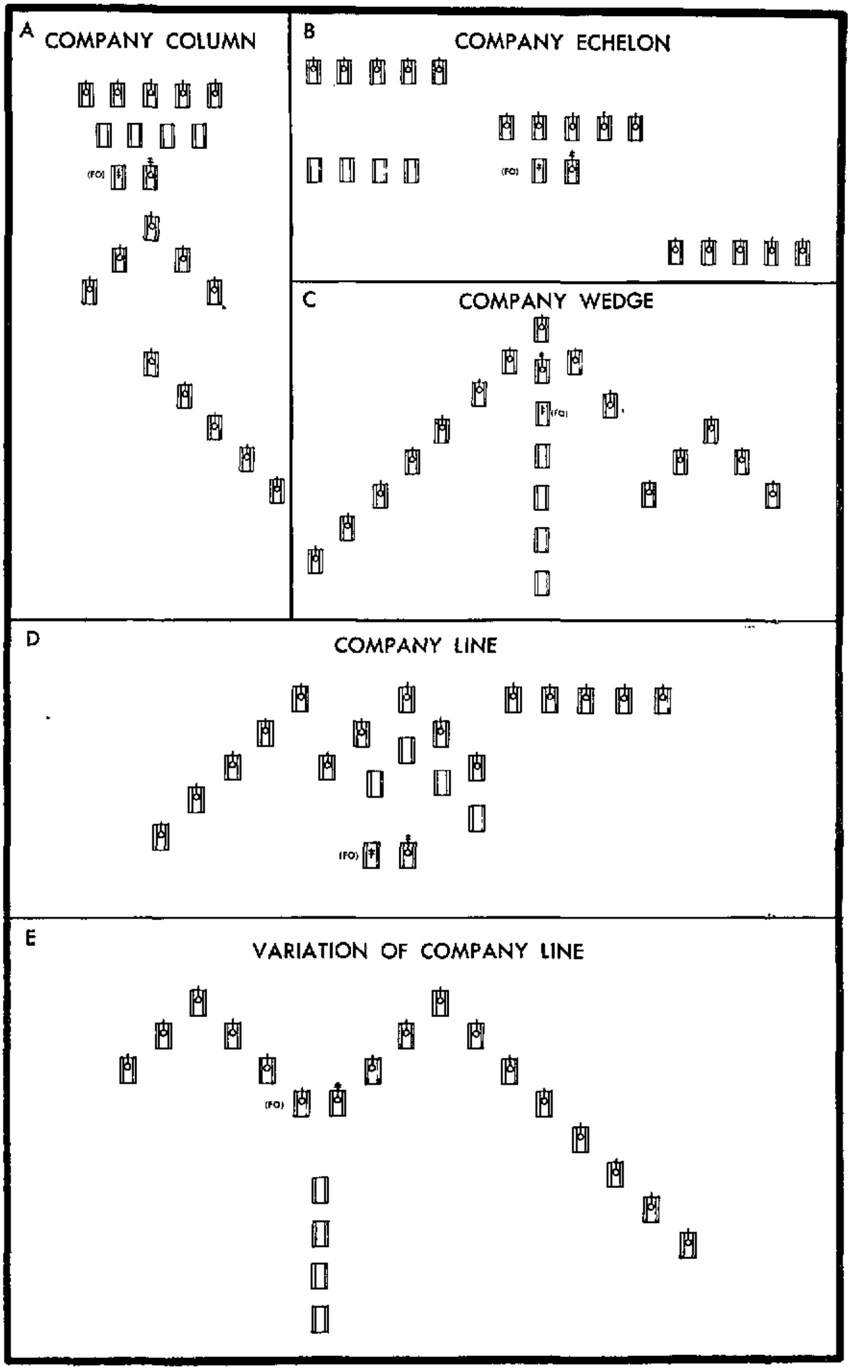


Figure 30. Combat formations, tank company team, showing possible variations of platoon formations.

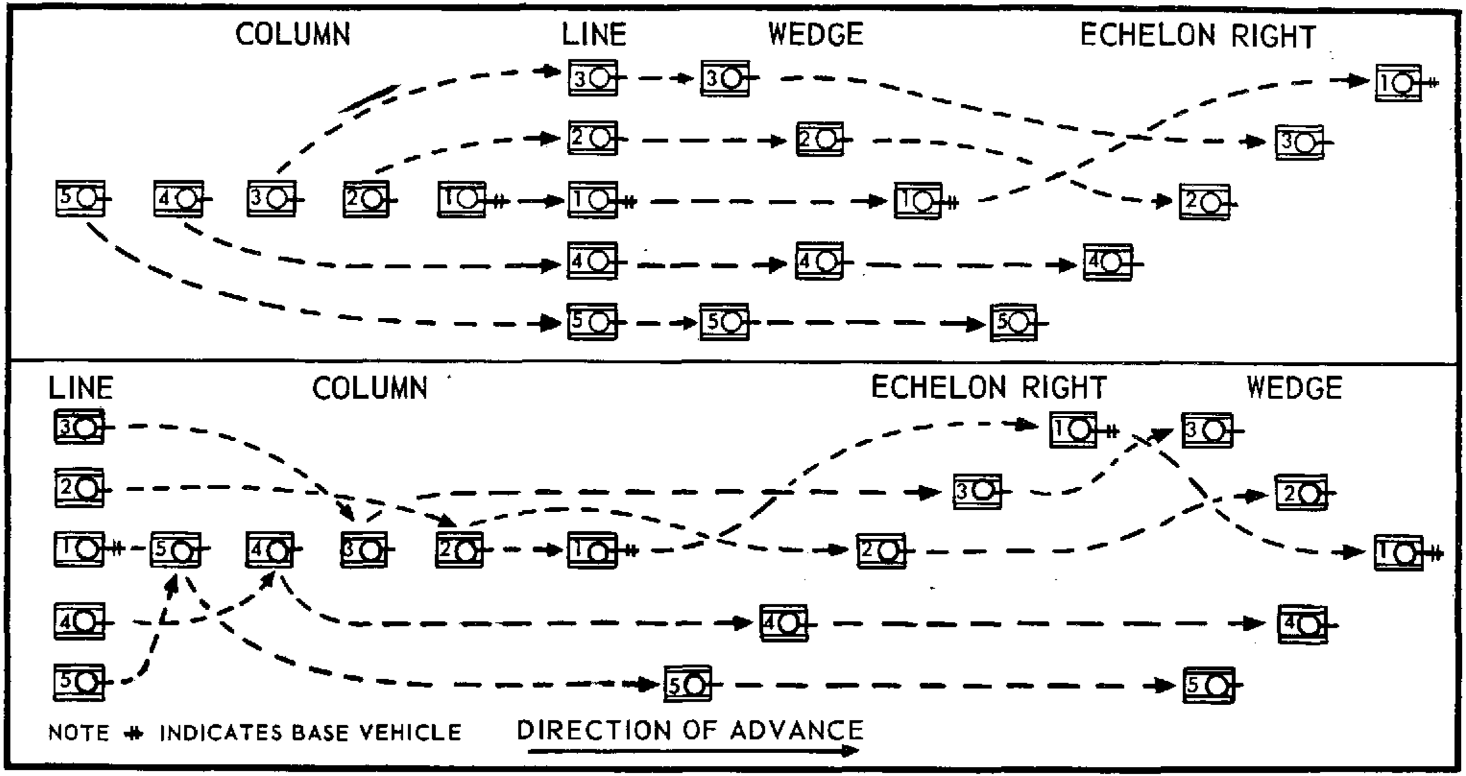


Figure 31. Changing combat formations.

Section IV. UTILIZATION OF FIREPOWER

50. Selection of Targets

a. Tanks always engage first those targets which are most likely to interfere with the accomplishment of their mission. While no hard-and-fast rule can be drawn, enemy armor commonly offers the greatest threat and, if present, will be the first target to be engaged.

b. Tanks engage enemy armor and automatic weapons. Armored infantry, employing infantry tactics of fire and maneuver, support the tanks by destroying dug-in antitank guns and tank hunters who cannot be engaged by the tanks.

c. Tanks acting alone, or in a combined-arms team consisting principally of tanks, concentrate first upon enemy tanks and antitank guns, then upon other vehicles and troops.

51. Distribution of Fire

Unless the fire of a tank unit is controlled, the tank crews may expend ammunition carelessly and ineffectively. On the other hand, sufficient fire must be delivered to insure destruction or neutralization of the target in the shortest possible time. The tank company commander and the platoon leaders control the distribution and volume of fire. The following factors are considered:

a. Number of Tanks in Position To Fire. When more tanks are in position than are needed to destroy a single target, only those in the most favorable positions will fire (fig. 32). To make this possible, each tank must be assigned a definite, primary sector of responsibility. A company might have only one platoon in action, the others remaining concealed until another target appears. This control may lead the enemy commander to underestimate the force opposing him and thereby produce opportunities for surprise (*f* below).

b. Supporting Units Available.

(1) If supporting units are available to protect its flanks, the tank company concentrates its fire on targets to its front. Otherwise, certain tanks must be designated to watch for targets of opportunity to the flanks and rear.

(2) Supporting artillery and mortars should be employed against distant or large area targets, leaving the tanks free to engage targets closer to them.

(3) Supporting artillery or mortars should also be employed to provide any smoke which the tank company may require in the accomplishment of its mission.

c. Distant Targets. Accuracy of fire decreases with an increase in range. Therefore, the greater the range to a target, the more tanks that must fire on the target to ensure its destruction or neutralization.

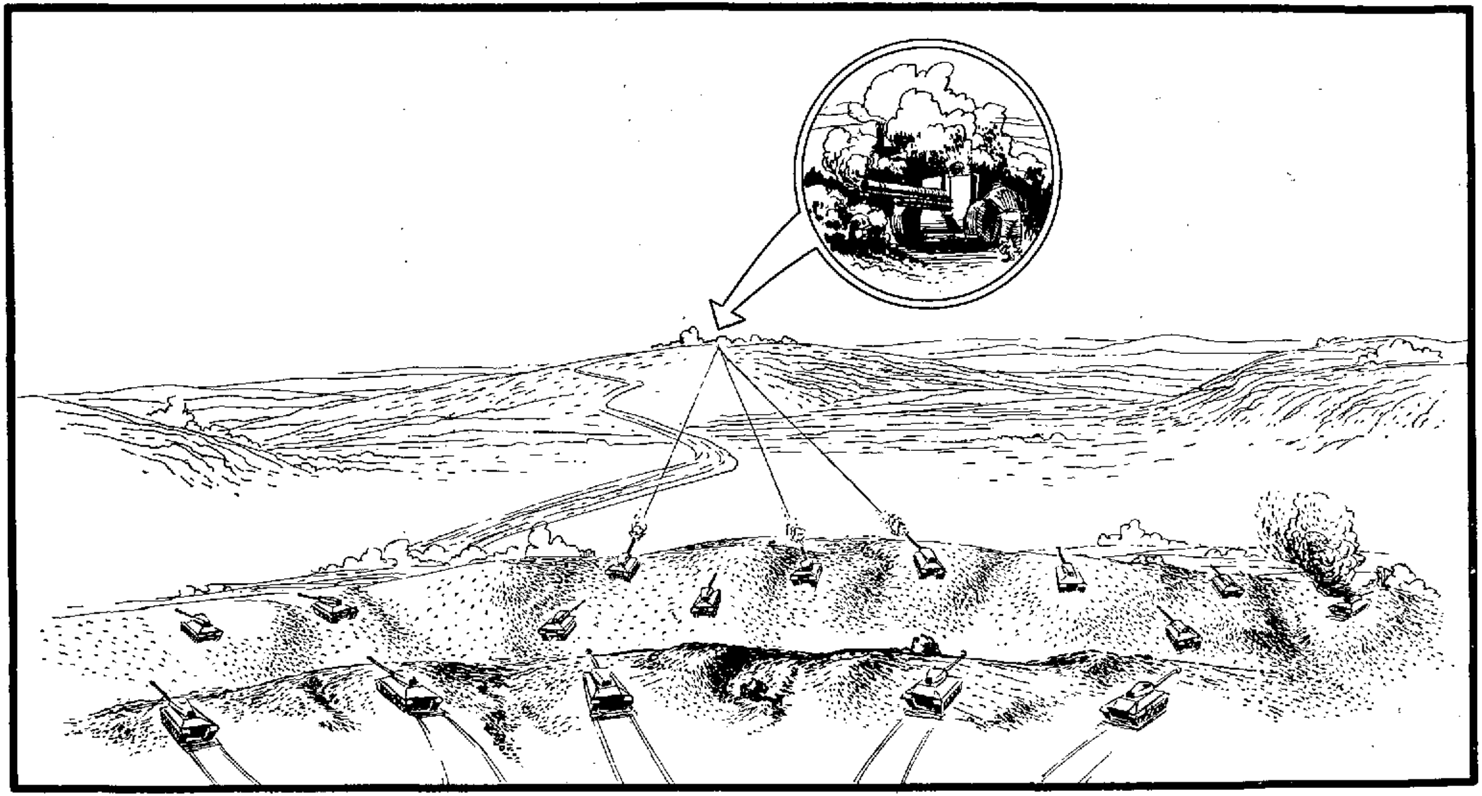


Figure 32. When more tanks are in position than are needed to destroy a single target, only those in the most favorable positions will fire. The others continue to observe in their assigned sectors for new targets.

d. Number of Targets.

(1) When there is more than one important target, fire should be distributed to engage as many targets as possible (fig. 33).

(2) Should a dangerous new target appear at a moment when the tank company is fully engaged, certain tanks must be designated to take it under fire.

(3) If the company does not have sufficient firepower to engage all available targets, it requests assistance from the battalion commander. Such a request may include the fact that a particular type of fire support, such as artillery or tactical air, appears most appropriate. Meanwhile, the company continues to engage the most dangerous targets.

e. Type of Target.

(1) Generally, the more dangerous a target, the more fire is concentrated upon it.

(2) A target which is hard to see is hard to hit and therefore requires a greater volume of fire than one in the open. For example, a well-concealed antitank gun may be very difficult to destroy or neutralize even though its general location is known.

f. Surprise.

(1) When the tank company is able to surprise an enemy force, each platoon is given a definite sector of fire. The platoon leaders, in turn, designate definite sectors or targets for each individual tank. All tanks fire together, on the company commander's order.

(2) If the company is attacked suddenly, each tank commander immediately engages the most dangerous targets in his assigned sector of fire until the platoon leaders and company commander are able to determine the point or points where fire should be concentrated.

g. Firing Position for Tanks.

(1) Tanks used for fire support are placed in hull-defilade firing positions. A tank is in hull defilade when the lowest portion of the tank visible from the front is the main tank gun. The use of hull defilade provides maximum protection while engaging enemy targets with direct fire.

(2) Firing positions are classified as primary, alternate, and supplementary.

(*a*) A *primary* firing position offers the best conditions for carrying out the assigned mission.

(*b*) An *alternate* firing position is used for carrying out the assigned mission when the primary position becomes unsuitable.

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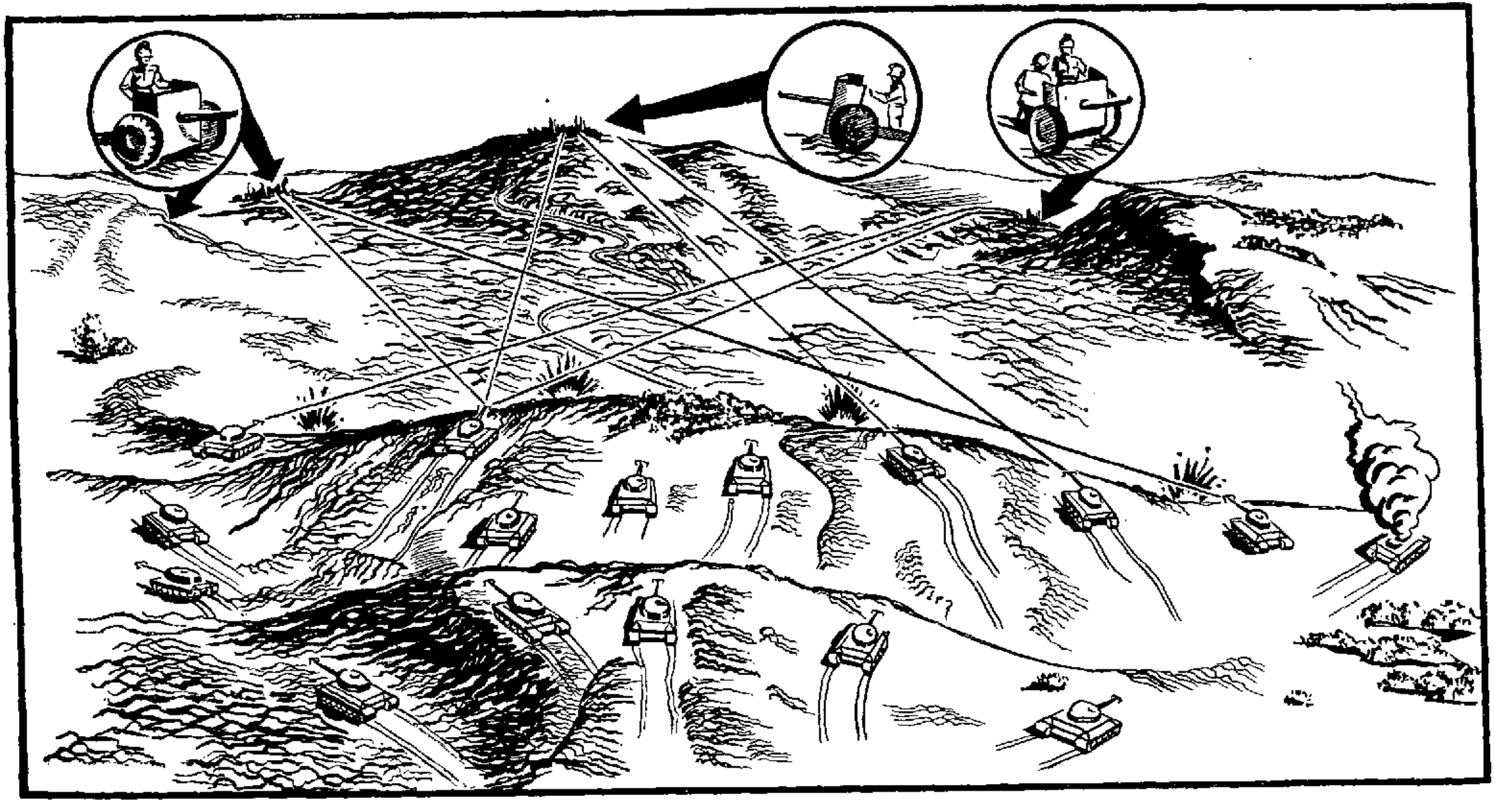


Figure 33. When there is more than one important target, fire is distributed to engage as many targets as possible.

(c) A *supplementary* firing position is used for firing on targets that cannot be reached from the primary or alternate position.

h. Reconnaissance by Fire. Reconnaissance by fire (par. 92) is accomplished by firing the main tank gun and/or machine guns into suspected enemy positions, in an effort to make the enemy disclose his positions.

Section V. ACTIONS AGAINST PERSONNEL

52. General

Tanks can overrun and crush enemy weapons, shallow entrenchments, personnel, and light vehicles. When combined with fire and rapid movement, this capability can be employed advantageously by attacking tank units against dismounted enemy personnel.

53. Attack Against Moving Personnel

In fast-moving, fluid situations, especially during exploitations, tank units may encounter marching formations of enemy troops who are unaware of the immediate presence of tanks.

a. If the attacking tanks have the advantages of high ground and good fields of fire, they may take initial positions to rake the enemy formation with fire. Normally, this surprise fire is of short duration (2 or 3 bursts of machine-gun fire and one or two rounds from each main tank gun). It is designed to kill as many enemy troops as possible before they can take cover. As soon as the tank unit commander sees that maximum advantage has been gained from this initial surprise fire, he orders his units forward, preferably in line formation, to attack the enemy with as much speed and violence as possible. The unit advances, machine guns firing, directly into the enemy formation, employing essentially the same tactics used in the final assault of any objective. Any accompanying armored infantry dismount from their vehicles to complete the task of crushing resistance and taking prisoners.

b. If the attacking unit is not in a position to take the enemy under surprise fire from a vantage point, the tank unit rapidly moves into a combat formation which will allow maximum firepower forward and attacks directly into the enemy formation, preferably from a flank.

54. Attack of Concentrations of Personnel

Whenever the enemy has concentrations of troops, such as in assembly areas and attack positions, he can be expected to take security precautions designed to prevent the surprise attack of his main body. When such a concentration is encountered, attacking tank units must depend on rapid movement to gain surprise and inflict the maximum shock effect on the enemy. The commander must quickly formulate

a plan of attack, transmit orders by radio, and commence the assault without halting. One or more elements of the attacking force should move on line directly into the enemy formation, machine guns firing. At least one element should be given the mission of encircling the enemy formation.

55. Attack Against Personnel in Fixed Positions

Enemy dismounted personnel defending a fixed position can be expected to have antitank weapons sited to cover logical avenues of armor approach. In the attack of such a position, tanks should be accompanied by armored infantry. The attack of antitank weapons is discussed in paragraph 63. Once the antitank defenses have been disposed of and the enemy defenses have been penetrated, tanks should move into and through the enemy position rapidly, machine gunning and crushing the enemy in foxholes and other defensive works which can be overrun.

Section VI. ACTIONS AGAINST TANKS AND ANTITANK WEAPONS

56. Tank Versus Tank—General

a. The material covered in this section (pars. 56–65) applies not only to enemy tanks but also to armored self-propelled weapons.

b. Tank unit personnel must be prepared to—

(1) Engage enemy tanks at any time, usually with little warning.

(2) Strike concentrations of hostile armor, by either attack or counterattack, to destroy the enemy's power for offensive combat.

c. Tank design is a compromise of the desired degrees of armor protection, cross-country mobility, firepower, speed, and crew and stowage space. Consequently, a type of tank possessing any one or more of these characteristics to an unusual degree will be below average in others. For example, a tank carrying extremely thick armor and heavy armament will be slow and difficult to manuever; and the larger the caliber of a tank's gun, the fewer rounds of ammunition it can carry. It is probable that some types of enemy tanks will possess outstanding characteristics but at the same time will be particularly vulnerable in some respects. Tank unit personnel must study the different types of hostile armored vehicles, must learn their respective strengths and weaknesses, and must develop techniques to defeat each type.

d. Tank personnel must be able to determine at a glance whether a tank is friendly or enemy. This ability will insure that enemy tanks are engaged immediately and that friendly tanks are not fired on. All tank unit personnel must be given training in recognition of both friendly and enemy tanks, as well as other armored vehicles.

e. Tank unit personnel also should be familiar with the enemy's tank tactics. Knowing how the enemy does a thing often helps in deciding what he is about to do. It should be remembered, though, that hostile tactics may change.

57. Tanks in the Antitank Role

a. General. The tank is the primary antitank weapon in the armored division (fig. 34). Other antitank weapons, and passive measures such as antitank obstacles, are also employed; but the tank is the principal means for destroying enemy armor.

b. Conduct of Action Against Enemy Armor. In an attack against enemy armor, tank units use fire, maneuver, and deception to permit the employment of their weapons at the most effective ranges and from the most effective positions. All available cover and concealment must be used; smoke may be employed to blind the enemy and to screen movements.

58. Tank Versus Tank—Action

a. Surprise may be attained by rapidly launching an attack against enemy tank elements when and where they least expect to be attacked. Effective reconnaissance determines where the weakest or least secure portion of the enemy formation is located.

b. Artillery fire support should be used in conjunction with the tank attack. This attack usually should be directed against the hostile flanks. Aggressive maneuvering and accurate fire are combined into a furious and continuous attack (fig. 35).

(1) Artillery fire breaks up the enemy formations, causes individual tanks to button up, and can be used to isolate portions of the hostile force so that it can be destroyed in detail.

(2) Under favorable conditions, smoke can be highly effective. However, care must be exercised, because a slight change in the wind may shift the smoke to the enemy's advantage.

(3) In an attack against enemy tanks, some friendly tank elements may be employed in an overwatching role to pin down enemy tanks by direct fire while the remainder of the force closes with the enemy (fig. 36).

c. Requests should be submitted for airstrikes on enemy tank concentrations. These airstrikes should be carefully coordinated with artillery fires and the attack of the maneuvering force.

d. On occasion, it will be possible for a tank platoon or company to ambush enemy tanks with flanking fire from covered or concealed positions. On such occasions, each tank is assigned a definite target. All tanks open fire together on order (fig. 37). Each tank should—

(1) Get off several aimed shots before the enemy can recover and return the fire.

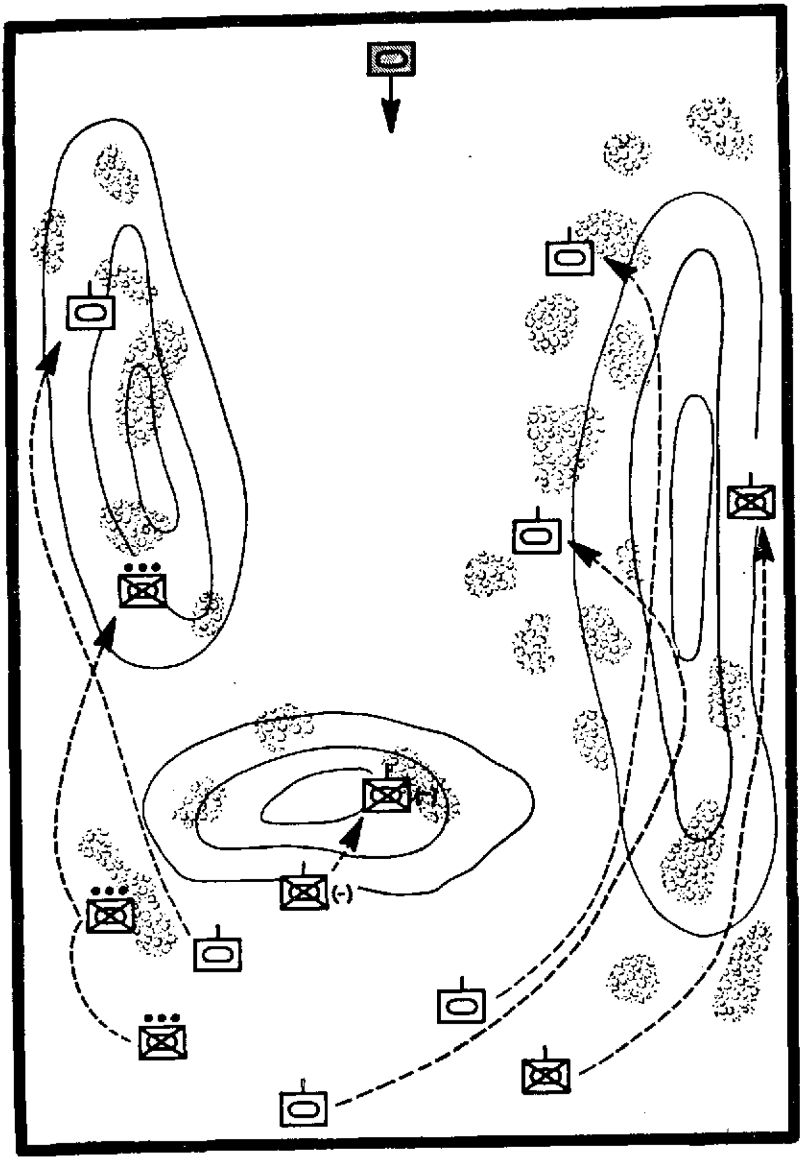


Figure 34. Active utilization of fire and maneuver by tanks is the primary means available to commanders for destroying hostile armor.

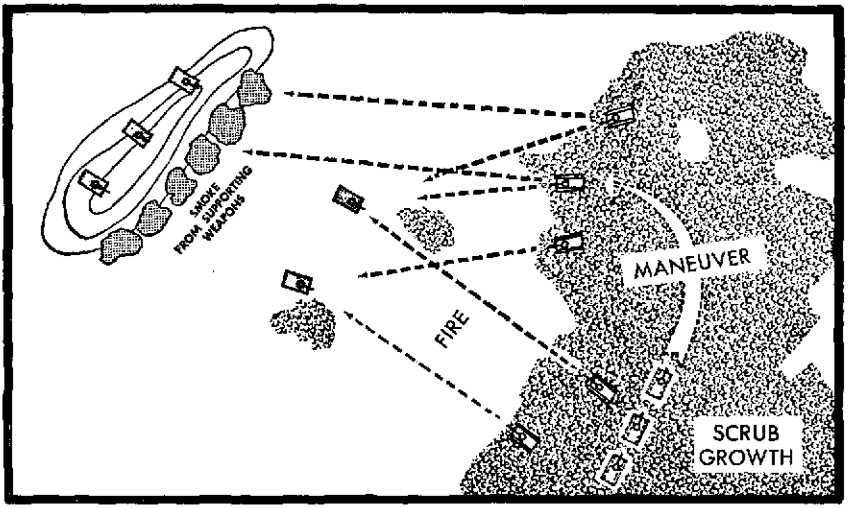


Figure 35. Aggressive maneuvering and accurate fire, combined with fire support from available weapons, should be used when fighting enemy tanks.

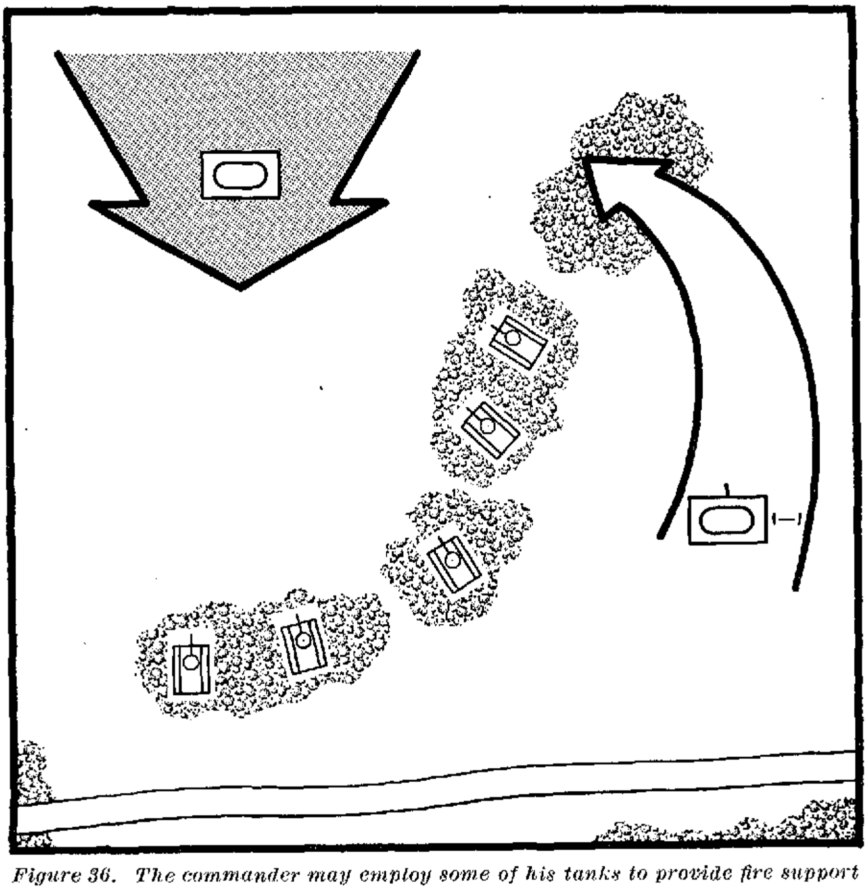


Figure 36. The commander may employ some of his tanks to provide fire support while he maneuvers the bulk of his tanks against the enemy.

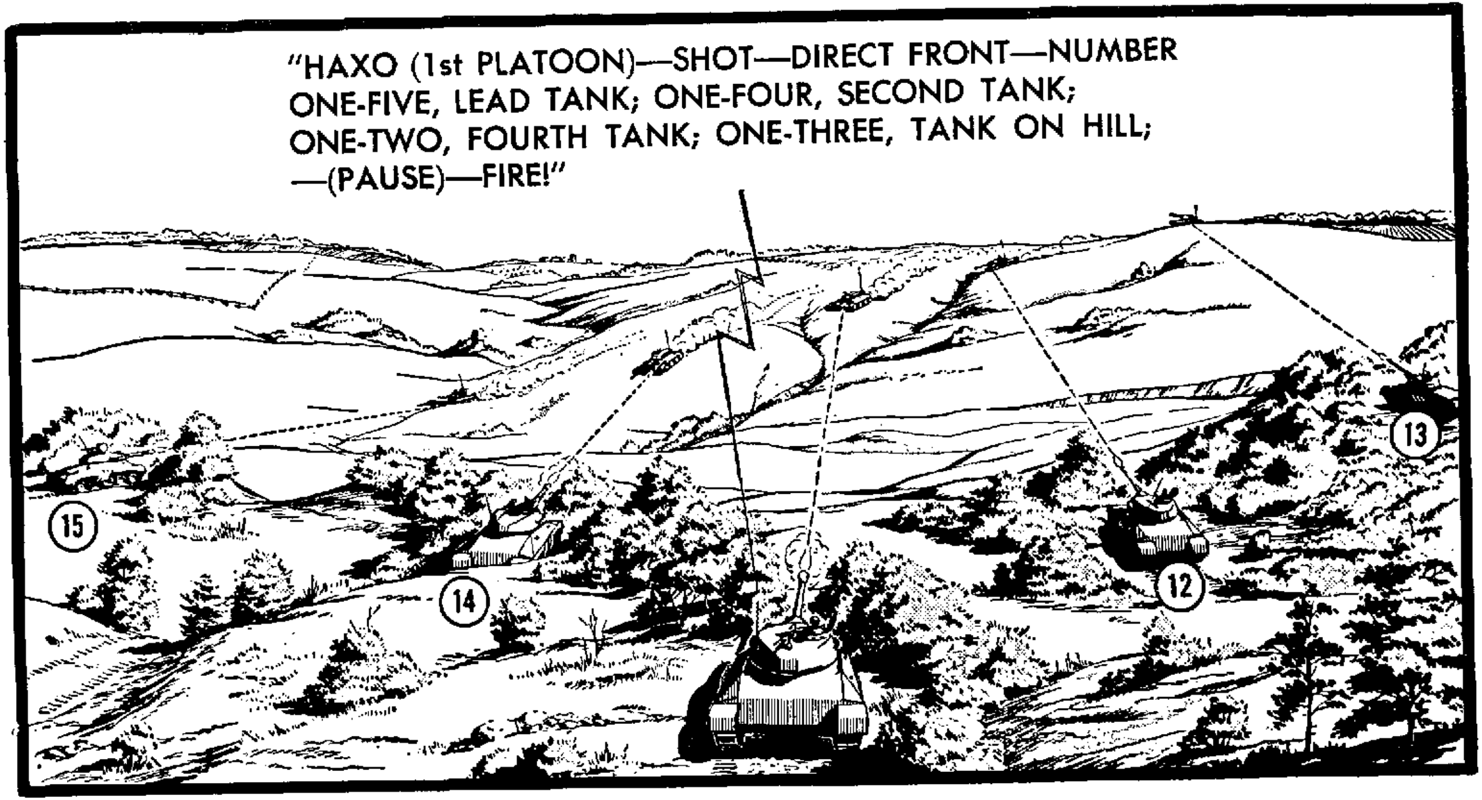


Figure 42. Since antitank gun positions may be protected by mines, they should not be overrun recklessly.

(2) If the enemy tanks are moving across the front, destroy the rear tanks first; in that way it will take the enemy a few seconds longer to realize his danger and make it easier to trap him.

(3) As soon as the first effect of surprise is over, employ fire and maneuver against the surviving enemy tanks. This part of the fight must be planned in advance, so that the attack is immediate and violent.

59. Tank Versus Tank—Weapons and Ammunition

a. If the guns of the enemy tanks are inferior, the friendly tanks can keep just beyond their effective range and destroy them. In the attack of an enemy whose armament is superior, supporting artillery may fire HE and smoke, and tanks may fire WP, to blind and confuse the enemy while the attacking force closes rapidly to effective range (fig. 38). Fire should be directed at the side or rear of an enemy tank if possible. If WP is not available, tanks may fire colored smoke or HE.

b. HVAP or AP–T is fully effective only if it completely penetrates the enemy armor. Therefore, enemy tanks should whenever possible be engaged at a range which insures penetration. The sides and rear of the enemy tank are weaker than its frontal plates, and can be penetrated at longer ranges.

c. HE may be effective against the tracks and suspension systems of enemy tanks at maximum range (fig. 39).

d. WP has a demoralizing effect upon tank crews. It may be employed to blind individual tanks or to set fire to those that already have been damaged.

e. HEAT is effective at maximum range in that the penetrating ability does not decrease with a loss in velocity.

f. If heavy enemy tanks must be engaged at a range which does not insure penetration, a concentration of fire is placed on each tank to retard its advance, set it afire, make its fire ineffective, and provide an opportunity for friendly tanks to maneuver into an advantageous position. HE, WP, and machine-gun fire harass the crew, force them to button up, and blind them. AP–T or HVAP may jam the turret ring or damage the gun itself. While the enemy tanks are being engaged with this fire, friendly tanks maneuver close enough to destroy them.

g. For further discussion, see FM 17–12.

60. Tank Versus Tank—Distribution of Fire

a. If the enemy tanks are superior in number, tanks on the flanks fire on the enemy's flank tanks and then shift their fire toward the enemy's center, while center tanks initially fire on the enemy's center tanks and then shift their fire to the hostile flanks. This insures that

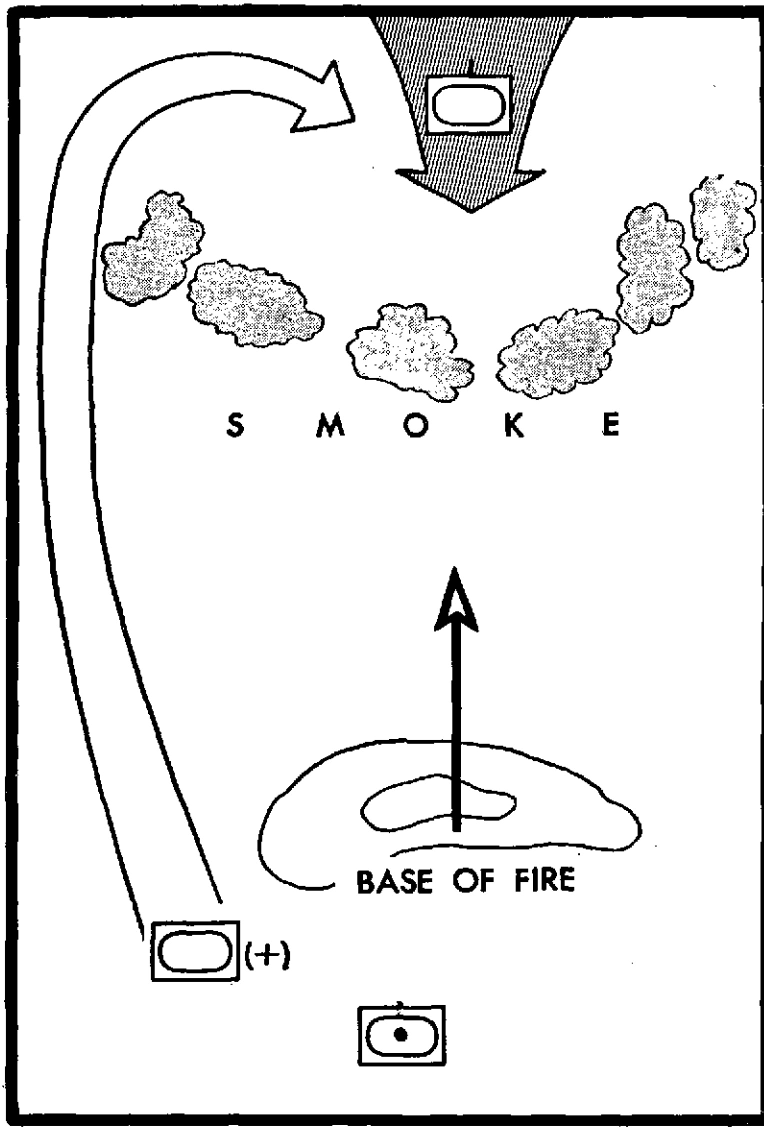


Figure 38. Smoke may be used to blind enemy tanks while the attacking force closes rapidly to effective range, maneuvering to hit the enemy tanks in the flank or rear if possible.

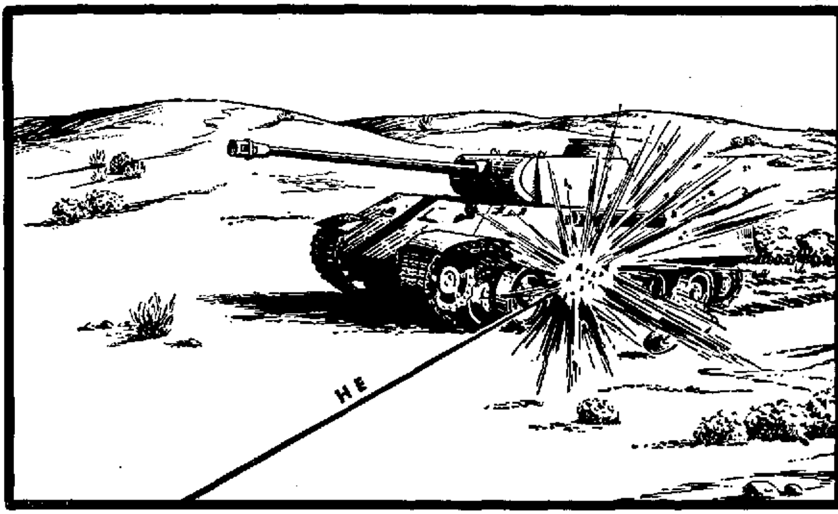


Figure 39. Tank gun HE may be effective against tracks and suspension systems.

all hostile tanks are taken under fire and kept under continuous fire. Another method is to smoke some of the enemy tanks and concentrate fire on the others.

b. If the enemy is outnumbered, fire should be massed upon his tanks. This may be accomplished by—

(1) Ordering several friendly tanks to engage each hostile tank until it is destroyed.

(2) Engaging each enemy tank with one friendly tank, while concentrating the fire of the rest of the friendly tanks on successive enemy tanks.

61. Supporting Arms and Weapons in Tank-Versus-Tank Action

a. Artillery.

(1) Artillery offers a rapid and effective means of smoking enemy armor.

(2) The fire of light artillery (105-mm) can harass and disorganize enemy tank units. It forces them to button up. It destroys enemy infantry, or forces them to remain beyond supporting distance of the tanks. Medium artillery (155-mm) concentrations can damage or destroy tanks.

(3) The heavy artillery (8-inch howitzer) and rocket artillery (Honest John), using conventional ammunition, can damage or destroy enemy tanks. On occasion, against large concentrations of enemy tanks, both these weapons could deliver tactical atomic warheads.

(4) Artillery fire can be used for sound camouflage to draw the enemy's attention from the noise of the approach of friendly tanks.

b. Armored Infantry.

(1) Armored infantry ordinarily should not be used in tank-versus-tank actions, since they are vulnerable if caught in the open.

(2) Small detachments of armored infantry, armed with rocket launchers, recoilless rifles, and antitank rifle grenades, may operate from strong buildings or tank-proof ground to secure the flanks of friendly tank units. Such detachments may even advance on enemy tanks by covered or concealed routes.

(3) Snipers and machine guns may be employed to kill exposed enemy tank commanders, to destroy the crews of disabled enemy tanks, and to force tanks to button up.

(4) Armored infantry operate against any enemy infantry and anti-tank weapons which may be present.

(5) Armored infantry mortars may be employed for smoke screening missions.

62. Antitank Guns—General

a. Antitank (AT) guns, both self-propelled and towed, form part of most defenses and will be encountered in most tank actions.

b. Enemy AT gun positions can be expected to have good fields of fire, observation, and cover and concealment. They will be protected by obstacles and infantry. Guns encountered in open terrain may be dug in to hedgerows, open fields, clumps of brush, or farm buildings. Guns in rolling or broken terrain may be in partial defilade, on reverse slopes, or on hill crests. Both towed and self-propelled guns may have one or more alternate and supplementary positions.

c. Antitank guns seldom operate alone. The organization of their positions usually provides for flanking fire, mutual support, and defense in depth. Infantry with machine guns and rocket launchers protect their position from surprise, while mines and obstacles may be used to canalize friendly tanks into the antitank guns' fields of fire.

(1) Flanking fire must be expected, since the enemy usually attempts to locate his guns in positions from which they can fire on the lightly armored sides and rears of passing tanks.

(2) Mutual support by antitank guns makes it difficult to attack any one of them without coming under the fire of one or more of the others. Their combined fire covers all logical approaches, and they are placed so that they can protect one another. Each gun usually is able to fire at the side or rear of a tank attacking another gun (fig. 40).

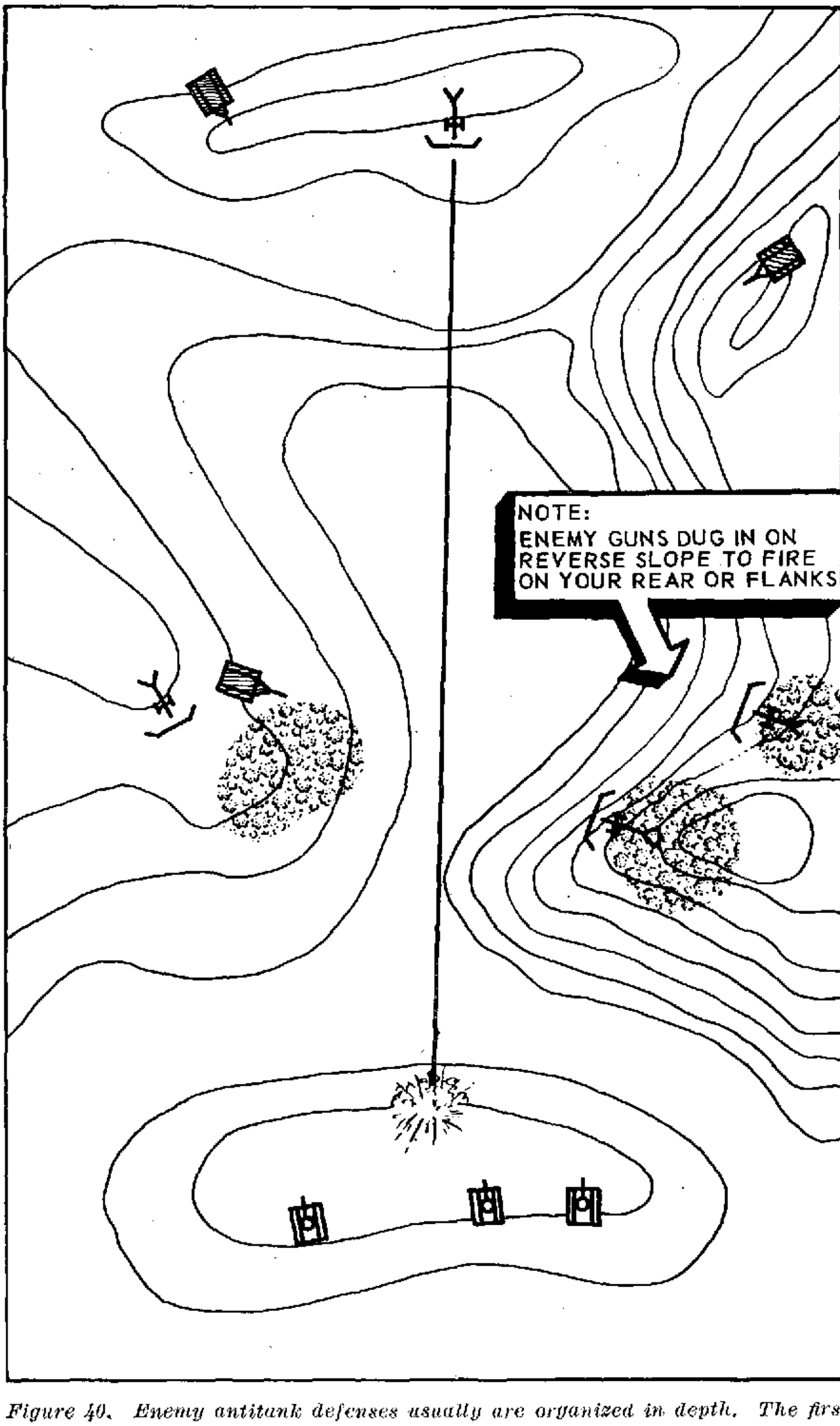


Figure 40. Enemy antitank defenses usually are organized in depth. The first gun to fire may not be the nearest one.

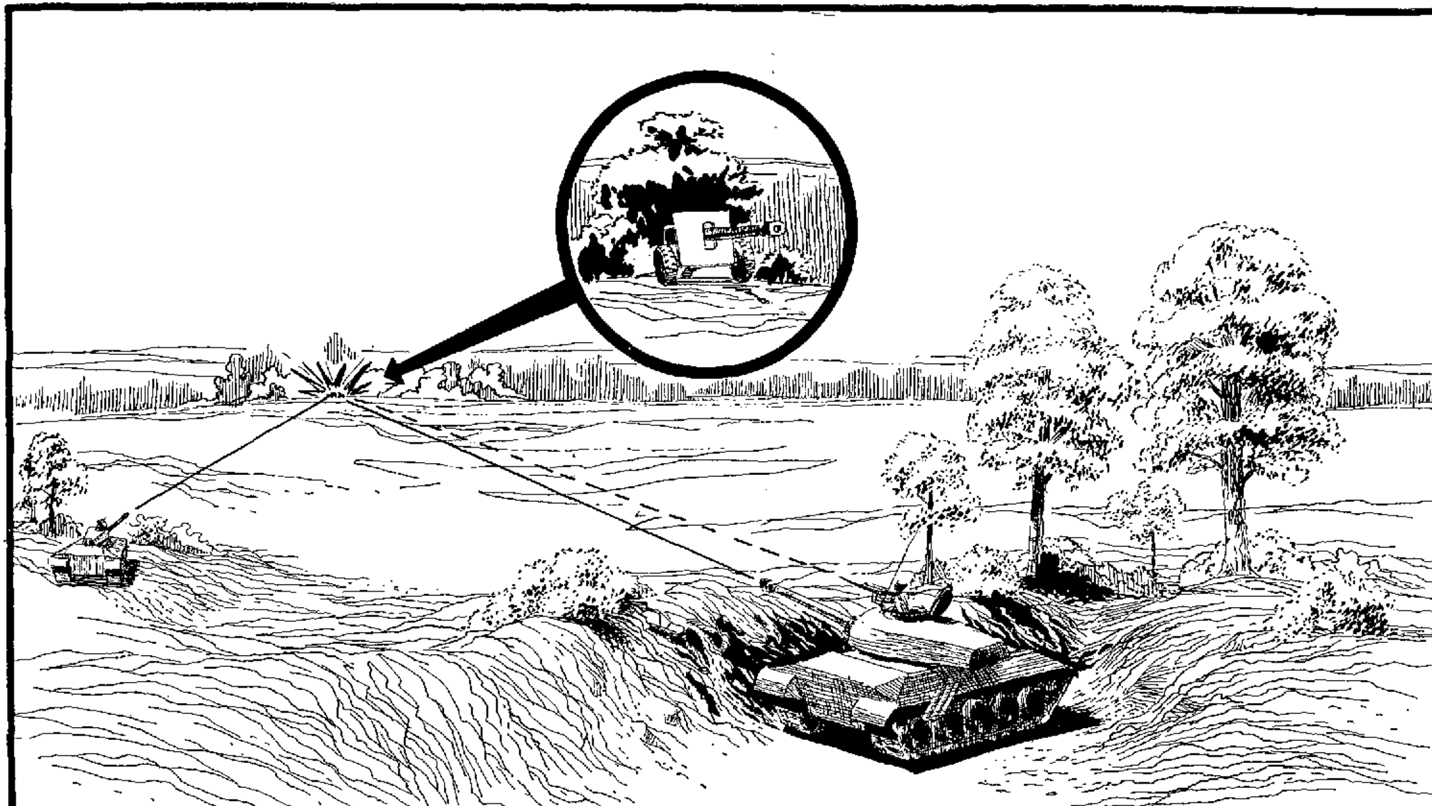


Figure 41. In attacking enemy antitank guns, both tank gun HE and machine guns are used.

d. The antitank defense is flexible. Self-propelled guns shift from position to position, maneuvering around the emplaced towed guns.

e. Deception is an essential part of antitank defense. A light gun in the rear of the position may open fire first to draw the tanks into the flanking fire of heavier forward guns. Guns on reverse slopes fire into the rear of tanks which have passed their position. Dummy positions may be set up.

63. Attack of Antitank Guns

a. Towed antitank guns are vulnerable to mortar, artillery, and tank-gun fires as well as attacks by dismounted armored infantrymen. Self-propelled guns are more difficult to destroy but can be neutralized by smoke.

b. Direct fire is employed against enemy antitank gun positions whenever possible. Although it is desirable to attack antitank weapons by maneuvering to their flanks or rear, the maneuvering force must be careful not to become engaged with other antitank guns which are mutually supporting with the one being attacked. Smoke is used to blind hostile gun crews, and HE and machine-gun fire is used to destroy or neutralize them (fig. 41). Since enemy antitank guns are often protected by mines, tanks normally do not overrun the guns, but destroy them with short-range HE fire (fig. 42). When covered approaches permit dismounted armored infantry to get close to the hostile gun, they use rocket launchers and other infantry weapons against it. Armored infantry also assist by locating enemy tanks and self-propelled guns and designating them as targets to the tanks. When unarmored antitank guns are so positioned that tanks cannot destroy them, dismounted armored infantry move in, supported by tank fire, and destroy the crews with infantry weapons (fig. 43).

c. Tanks engage self-propelled antitank guns as if they were enemy tanks. Towed guns caught moving are practically helpless. Tanks immediately destroy them by fire, machine gunning and overrunning their crews.

64. Attack of Artillery Positions

a. Enemy artillery positions normally will be encountered immediately in rear of the hostile defensive positions. The destruction of this artillery materially assists a breakthrough, since the enemy will attempt to employ it for both direct and indirect artillery fire against the advancing tanks.

b. Artillery positions are usually protected by antiaircraft artillery, which has a secondary antitank mission.

c. The tank company employs fire and maneuver against enemy artillery. Towed artillery is at a disadvantage when attacked from the flanks and rear, or when caught moving. It also is vulnerable to

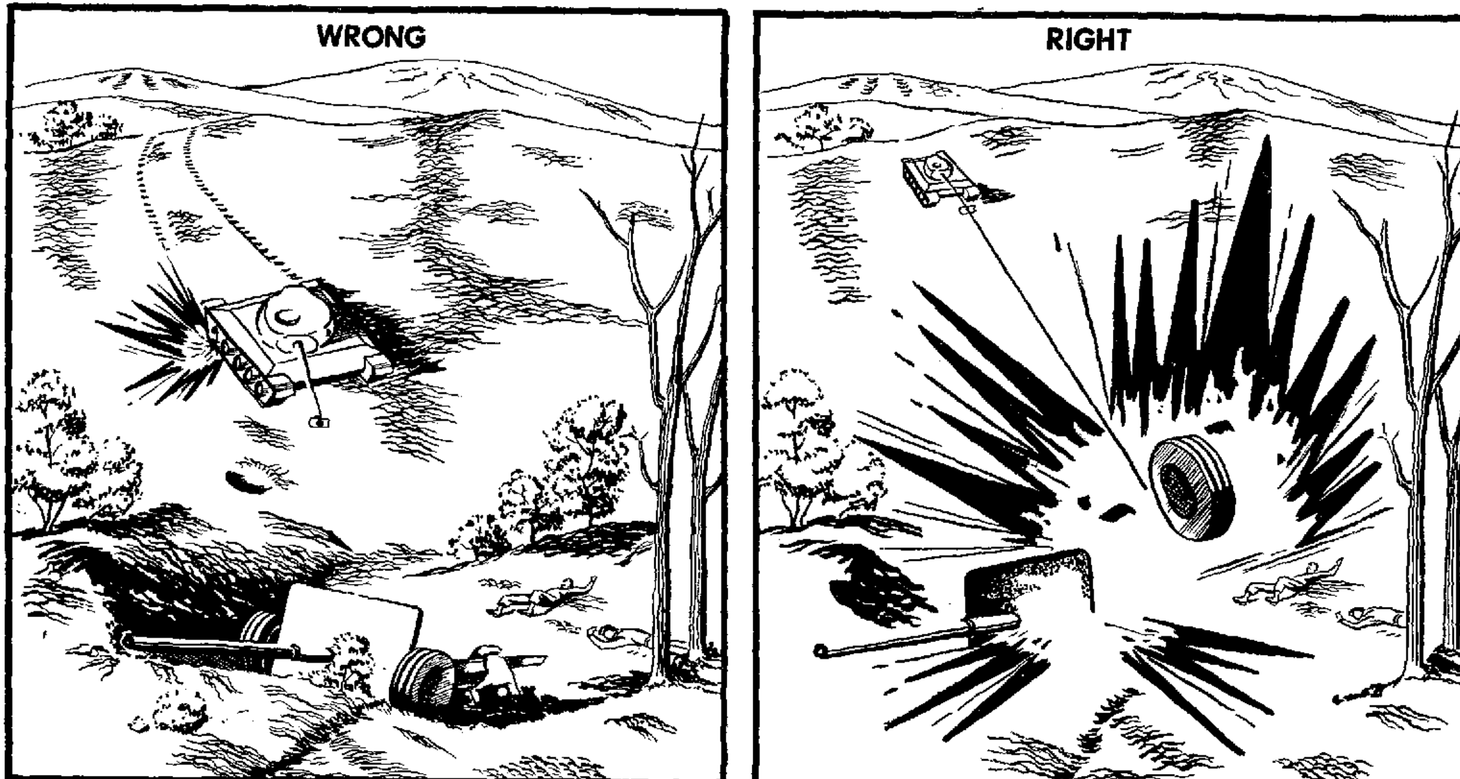


Figure 42. Since antitank gun positions may be protected by mines, they should not be overrun recklessly.



Figure 43. Armored infantry attacking hastily occupied enemy antitank gun positions.

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the fire of friendly artillery and mortars. Self-propelled artillery makes a good target for tactical air. Tanks engage self-propelled artillery as they would enemy tanks, taking advantage of the relatively limited traverse which characterizes most armored artillery. Enemy heavy artillery, whether self-propelled or towed, is slow and difficult to maneuver and therefore vulnerable to either tank or infantry assaults.

65. Individual Antitank Measures

Individual antitank measures include all means employed by dismounted soldiers to destroy tanks or their crews. A courageous infantryman, equipped for such action, may be fully as dangerous as an antitank gun.

a. In a tank-armored infantry attack, the armored infantry protect the tanks from such measures by machine-gun and rifle fire and close combat.

b. When the leading element of the attack consists of tanks alone, one or more of the following methods may be used:

(1) The supporting element watches the area immediately around the tanks; machine-gun fire is placed on anything that moves in their vicinity.

(2) Armored infantry and tanks in the second wave of the maneuvering force place assault fire around the leading tanks.

(3) The advancing tanks use coaxial machine guns to neutralize possible rocket-launcher positions and to keep foot troops down and away from them. HE may be used against dug-in personnel. Flamethrowers, if available, are excellent for this work.

(4) The advancing tanks also protect themselves by adopting a formation which enables each tank to cover the front or the flank and rear of another.

(5) The advance of the leading tanks may be covered by artillery air bursts.

Section VII. SECURITY OPERATIONS

66. General

a. Security is a command responsibility. The armor battalion commander provides for the local security of his unit at all times. In addition, he contributes to the general security of the larger command of which his unit is a part, to the extent required by the higher commander.

b. This overall responsibility of the battalion commander in no way relieves company commanders, platoon leaders, or vehicle commanders from their own responsibility for the local security of their respective units. In the final analysis, each individual of the bat-

talion is responsible for his own security and for the security of his weapons and his vehicle.

c. Security must be all round. Sudden attacks by air, guerrilla, airborne, or mechanized forces can be expected without prior warning, even well behind the front. Any delay in meeting these attacks can result in the destruction of an entire unit.

d. Tank units provide their own local security, even when protected by other troops. Tank crews must be able to accomplish any type of security mission successfully, whether in their vehicles or dismounted.

e. The armor battalion commander carefully coordinates his security measures with those of adjacent and attached units. He is alert to obtain any information which may assist him, and he promptly disseminates any information which he may acquire.

67. Types of Security Forces

While on the move, security for the armor battalion is provided by security forces; by air and ground reconnaissance to the front, flanks, and rear; by liaison with adjacent units; and by the composition of the column. Administrative and service elements in the column are protected by placing combat elements close to them. Depending on the situation, column security may be provided by one or all of the following types of security forces (pars. 161–179, FM 17–1).

a. Covering force.

b. Advance guard.

c. Flank guard or guards.

d. Rear guard.

68. Covering Force

a. An armor battalion normally will not be used alone as a covering force but will be suitably reinforced with armored infantry, armored cavalry units, engineers, and artillery.

b. A tank company may be employed as part of a larger force on a covering force mission. A tank company reinforced with armored infantry may serve as the covering force for a combat command. The combat actions of a tank company in a covering force mission may be offensive or defensive. Often a delaying action (pars. 145–157) is employed. Emphasis is placed on security, use of long-range fires, observation, speed of movement, and mobility. Aggressive leadership, control, and prompt flow of information are critical.

69. Tank Company and Platoon—Advance Guard

a. A tank company or company team may form the advance guard for a battalion task force or a combat command. A tank platoon may form the advance guard for a company team operating on a semi-independent mission. However, in the normal situation where the company team is operating as part of the battalion task force, the

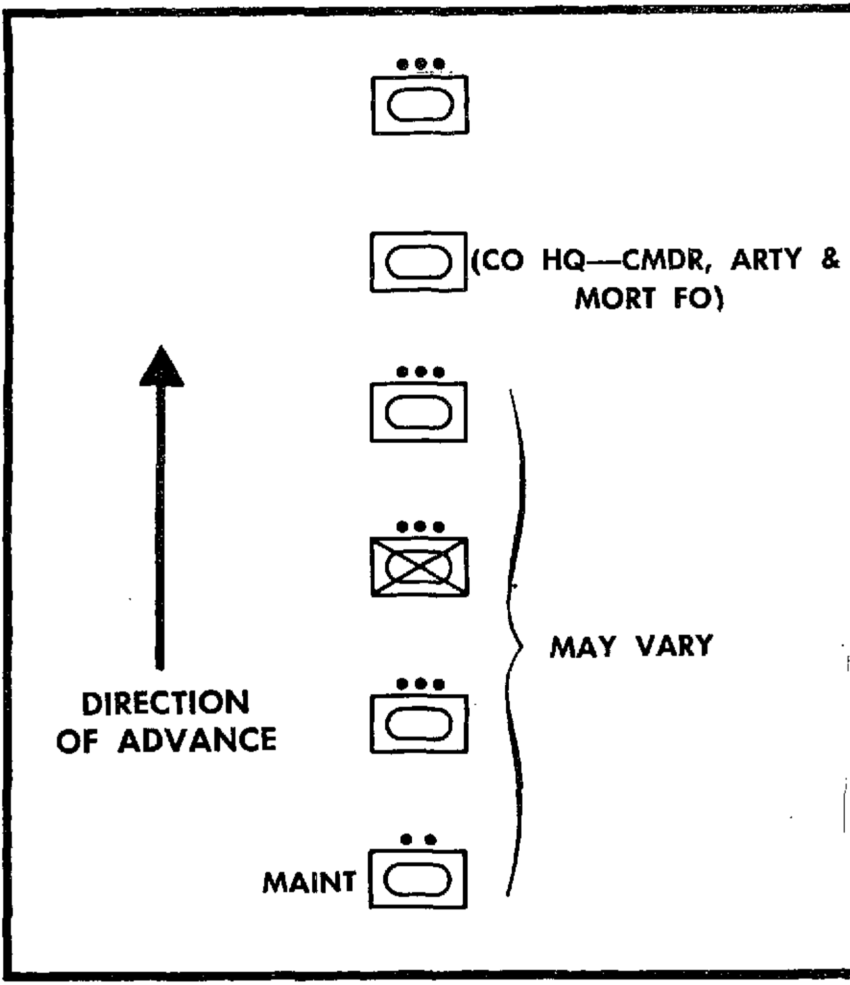


Figure 44. Typical order of march, tank company team as the advance guard for a battalion task force.

team does not employ a platoon as advance guard, since the main body commander will have designated an advance guard for the entire main body.

b. For a suggested formation for a tank company team employed as the advance guard for a larger force, see figure 44. In each situation, the factors of METT (mission, enemy, terrain and weather, and troops available) will dictate the exact formation to be adopted. Tanks usually lead, in order to get maximum firepower forward. Armored infantry are kept far enough forward in the column to enable them to support the leading tank platoon. At night or when hostile contact is imminent, the advance guard sets the rate of march; at other times, the advance guard conforms to the rate of the main

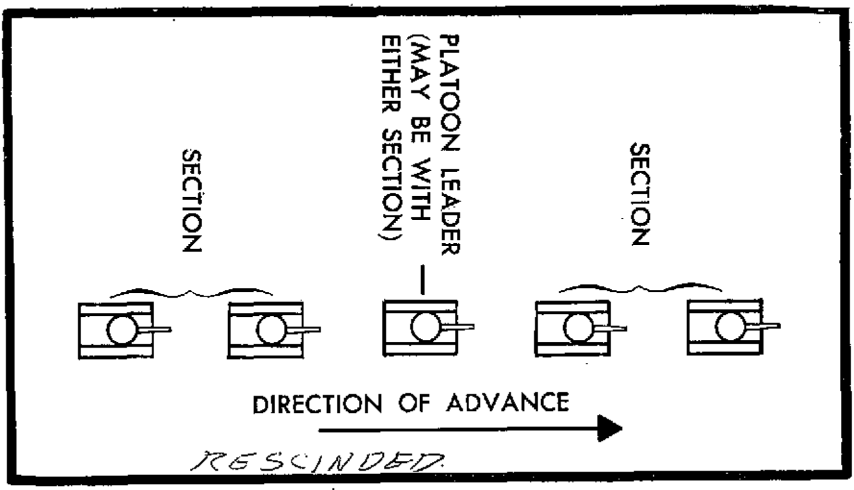


Figure 45. Typical order of march, leading tank platoon of advance guard.

body. Figure 45 shows a typical order of march for the leading tank platoon of an advance guard. Normally the platoon leader's tank will be the third tank in column, with one section in front of him and one section behind him. The platoon sergeant's section may be in either position.

c. The leading platoon of the advance guard is responsible for its own all-round security, and there are certain measures that it must take to provide this security. These security measures are—

(1) All-round observation. In figure 46 it will be noted that the leading tank does not have a primary sector of observation. The reason for this is that its commander is busy selecting

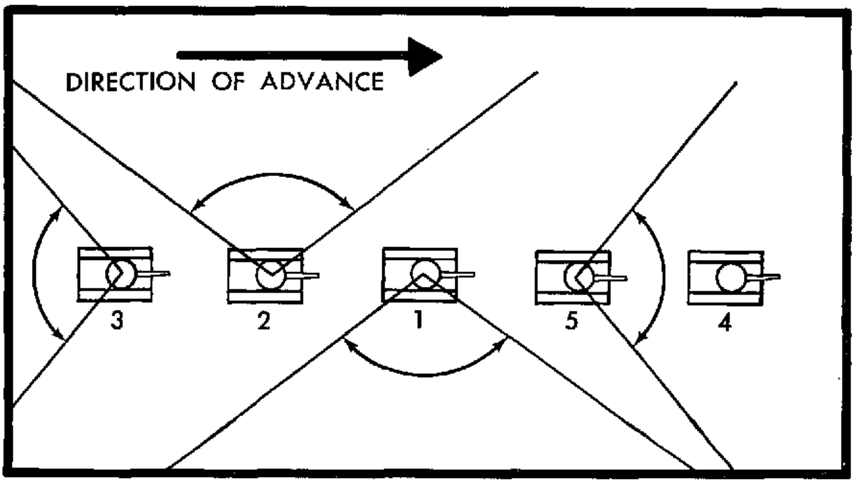


Figure 46. All-round observation.

the detailed route; however, he still observes to the front and flanks. The second tank is given the primary mission of observing to the front, the next tank to the right flank, the next tank to the left flank, and the last tank to the rear.

(2) Maintaining designated intervals and distance. This avoids bunching up and helps to prevent exposing all tanks of the platoon to enemy fire at the same time.

(3) All personnel remaining alert and ready for immediate action.

(4) Employing reconnaissance by fire before moving out of a covered or concealed position and during movement.

(5) Rapid movement forward.

(6) Designating air sentinels to watch for enemy aircraft.

d. When his unit is designated as the advance guard, the tank company commander or platoon leader should ascertain from the higher commander the following:

(1) The route or axis of advance of the main body.

(2) The frontage to be covered by the advance guard.

(3) The fire support available from the main body, and the availability of an artillery forward observer if artillery is included.

(4) Possible assistance from tactical aircraft, and from Army aircraft along the route.

(5) The mission of the company or platoon upon completion of its advance guard mission.

(6) The tactical situation, to include both friendly and enemy information.

e. When advancing on the road, the advance guard normally attacks directly from march column (pars. 105–108) to destroy enemy forces which attempt to impede its advance. A standing operating procedure, consisting of several simple battle formations, is useful in dealing with light opposition (fig. 47). This SOP should cover the employment of artillery or mortar support from the main body.

f. The advance guard commander never allows the greater part of his force to remain inactive on the road or in the open while the leading tanks engage the enemy. Instead, he deploys his force rapidly, concentrating all available firepower against the hostile force, and attacks.

g. If the advance guard is unable to overcome enemy resistance quickly, the main body commander may order the advance guard to establish a base of fire to cover an attack by the main body. The attack may be an envelopment, using the advance guard as a pivot, or a frontal attack, in which case the fires of the advance guard are placed on the objective from positions somewhat to the flank of the direction of attack. As the maneuvering force approaches the ob-

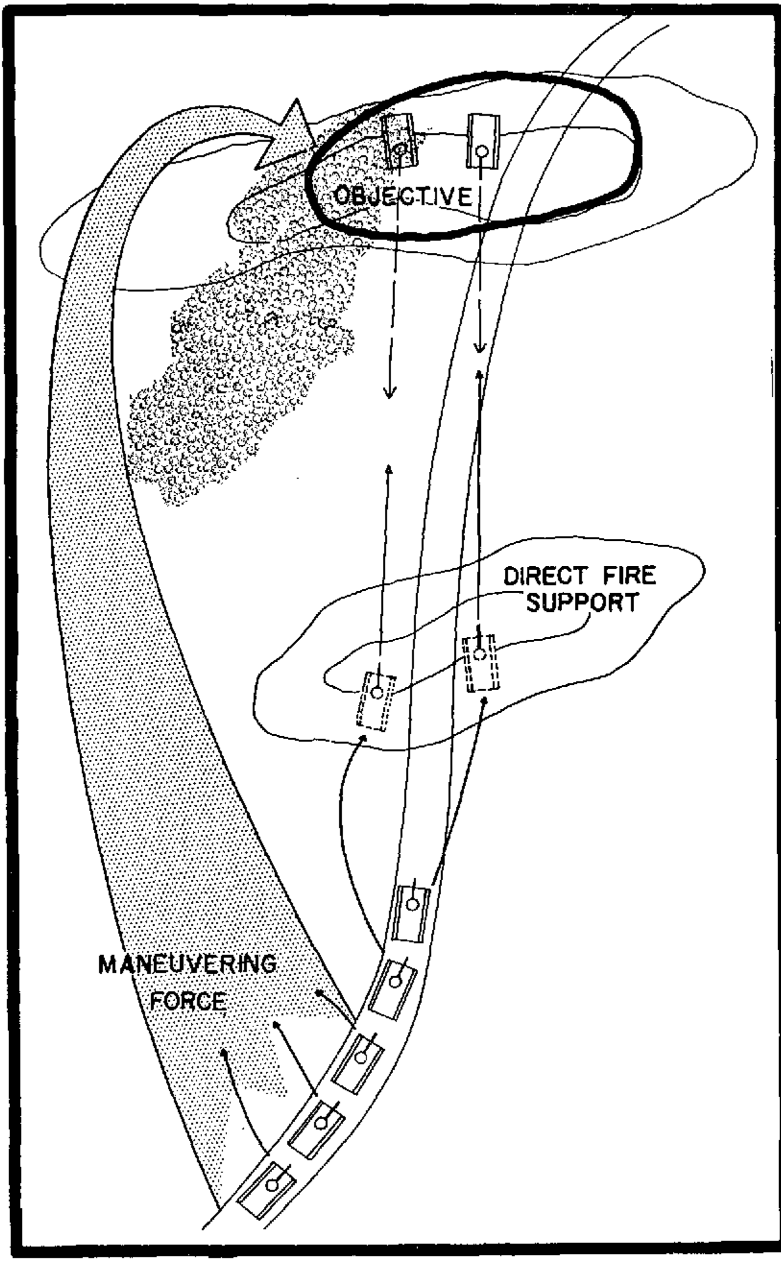


Figure 47. Tank platoon, advance guard action.

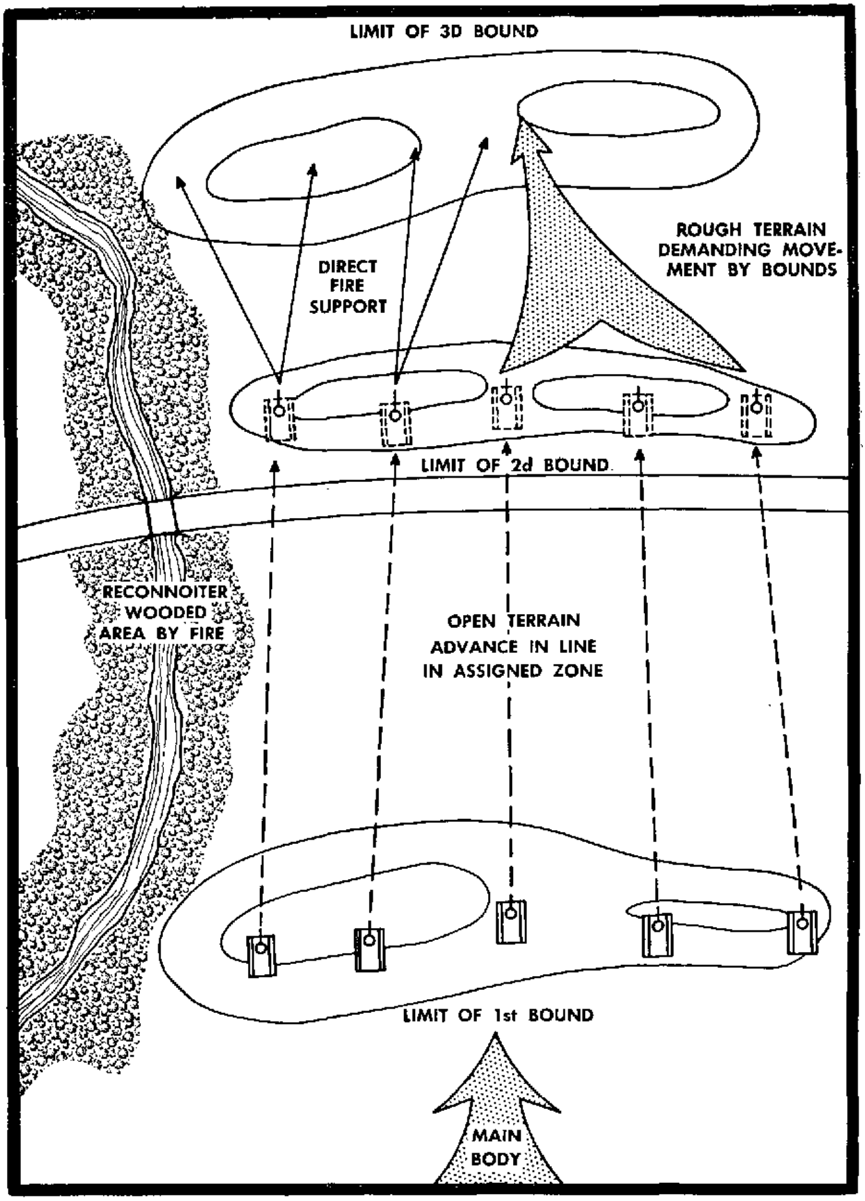


Figure 48. When moving across country, the advance guard normally advances on line on a broad front in its assigned zone. Where the terrain and possible presence of concealed enemy positions make it necessary, it may move by bounds, with advancing elements covered by the observation and fire of other elements.

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jective and the fires of the advance guard become masked, it moves forward in the assault.

h. When moving across country, the advance guard normally advances in line or wedge formation over a broad front. If the terrain is rough, it may be necessary to move by bounds. Each tank moves forward in the zone assigned it by the advance guard commander, taking advantage of available cover and concealment, searching for indications of hostile activity, and employing reconnaissance by fire against possible enemy positions (fig. 48). If one of the tanks of the advance guard meets resistance in its zone, those tanks nearest it give support by fire. When strong enemy resistance is encountered, the advance guard commander either requests supporting fires from the main body and attacks, or requests permission to bypass the resistance after reporting its location and nature to the main body commander.

i. A night advance is conducted generally the same as a daylight advance. However, security detachments of the advance guard are strengthened, the armored infantry are moved farther forward in the column, and distances between elements are shortened. The rate of advance is slower, and supporting fires are less effective. However, the possibility of gaining surprise is greatly increased. Particular care must be taken to establish the required security while effecting passage of defiles.

70. Tank Company and Platoon—Flank Guard

a. The tank company seldom is employed as the flank guard for a unit smaller than a combat command. The tank platoon may be detailed as the flank guard for a battalion. Frequently, the tank platoon will operate with armored infantry or the battalion scout platoon when performing this mission. When it so operates, the tanks strike enemy threats discovered by elements performing scouting and observing functions. Tanks also may be used to cover roadblocks in conjunction with dismounted elements of the flank guard.

b. When the road net permits, the flank guard moves parallel to the main body. It sends out elements to observation posts and to commanding terrain along the route of advance (fig. 49). When no parallel road net exists and cross-country movement is difficult, the flank guard secures the flank by operating from the main body. Elements are sent out to occupy and hold critical terrain features (blocking positions) along the route of march. These elements use the leapfrog or marching method of movement (par. 169, FM 17–1).

c. Army aircraft are used as aerial observation posts. This enables a tank unit acting as a flank guard to cover more area and reduces the requirement for ground observation posts.

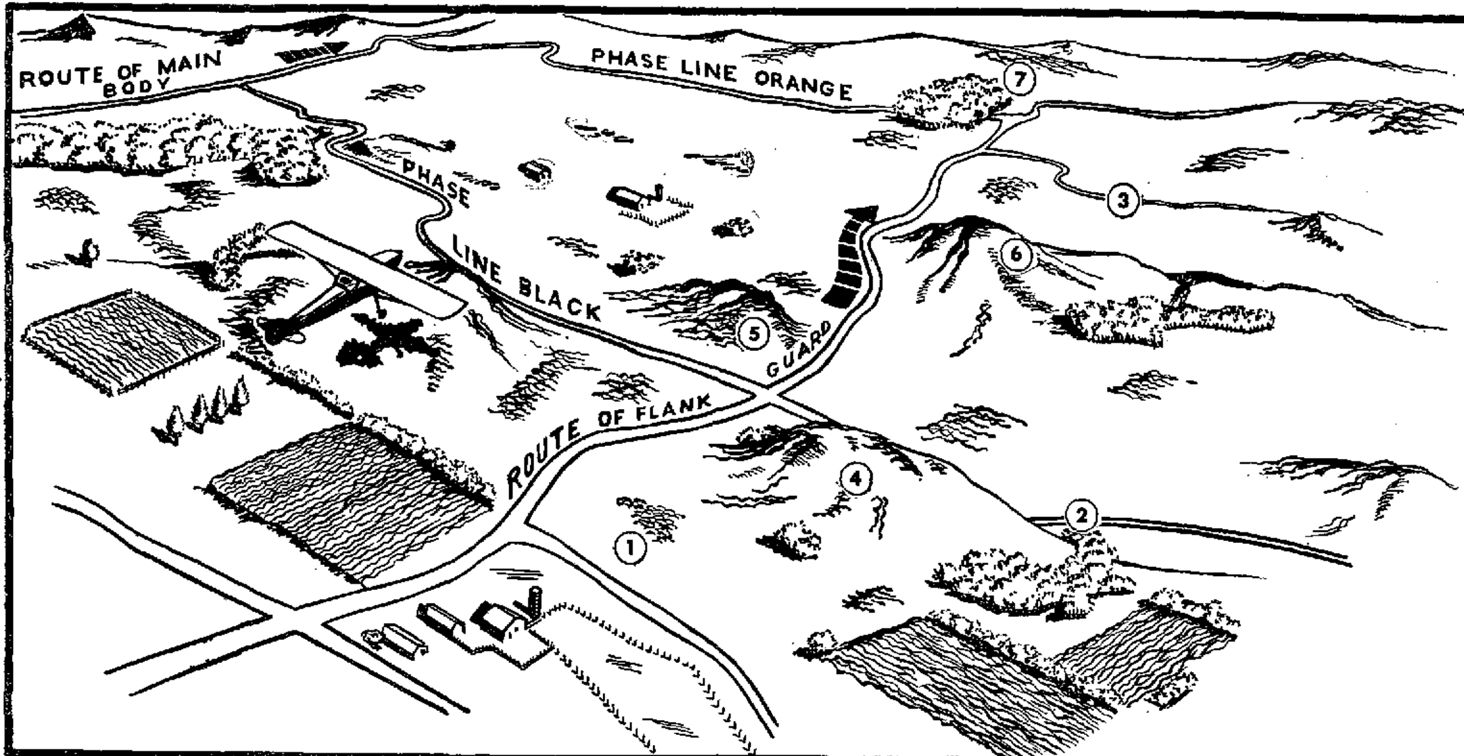


Figure 49. When the road net permits, the flank guard moves parallel to the main body, prepared to block roads (1, 2, and 3); observing from hills (4, 5, and 6); and reconnoitering woods (7).

71. Tank Company and Platoon—Rear Guard

a. During an advance, a tank platoon is capable of acting as the rear guard for a battalion task force. In a withdrawal, at least a tank company team will be required to perform this mission.

b. In a withdrawal, the rear guard engages the enemy in order to cover the disengagement of the main body. Usually the rear guard retires by bounds, basing its rate of retirement on that of the main body. It must not allow itself to be driven in on the main body. The rear guard normally employs a delaying action (pars. 145–157). The vehicular guns of the rearmost vehicles are trained to the rear. While his main concern usually is to the rear, the commander of the rear guard is also responsible for his security to the front and flanks. When counterattacking, the rear guard commander must remember that he cannot expect help from the main body, except for fire support from artillery or mortars. The rear guard does not withdraw, except in accordance with prearranged plans, until the main body commander authorizes it to do so. The rear guard destroys all materiel which cannot be evacuated. Engineer elements with the rear guard are employed to execute demolitions and to install minefields and other obstacles in order to delay the enemy advance.

72. The Tank Company on a General Security Mission

A tank company may be assigned the mission of providing the entire outpost for a larger unit, or it may occupy one sector of the general outpost.

a. The tank company commander allocates and assigns outpost sectors of responsibility to his platoons, although he may hold out one platoon as a reserve. Any armored infantry attached to the tank company are grouped with the tank platoons as the situation and terrain may require. A tank platoon outpost in rolling ground normally requires less armored infantry protection than does an outpost in broken or heavily wooded terrain. Once the platoons have organized their respective sectors, the company commander coordinates their dispositions, making any necessary adjustments.

(1) The tank company commander and the artillery forward observer plan for artillery support. Mortar concentrations are prepared to cover possible avenues of enemy approach.

(2) A system of patrols maintains contact between the outposts. The company commander should inspect each outpost periodically.

b. At night, outposts take up positions which are closer to the main body than those they occupy during the day. The tank company commander must carefully coordinate the movement of his platoons from the day positions to the night positions.

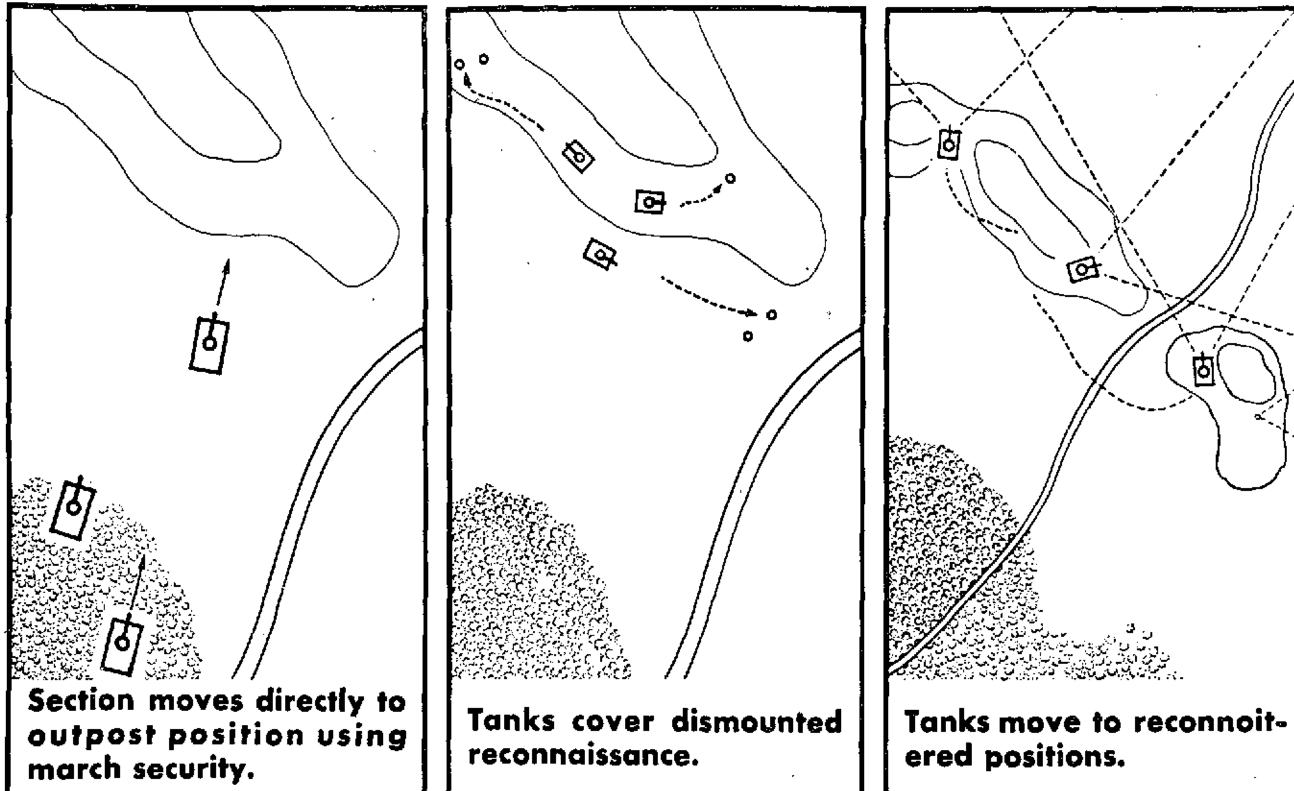


Figure 50. A method of assuming an outpost position.

c. If attacked, outpost positions are defended with all available weapons, including artillery supporting fires. Estimated strength, composition, and actions of the enemy are reported to higher headquarters. If the situation requires such action, the tank company commander counterattacks with his reserves.

73. The Tank Platoon on Outpost Mission

a. The tank platoon leader receives the general location of the outposts, and the limits of his sector, from his company commander. He makes as detailed a reconnaissance as time permits before moving his platoon to a temporary position in his general area of responsibility. Once there, he makes a rapid dismounted reconnaissance to locate exact outpost positions for each tank (fig. 50).

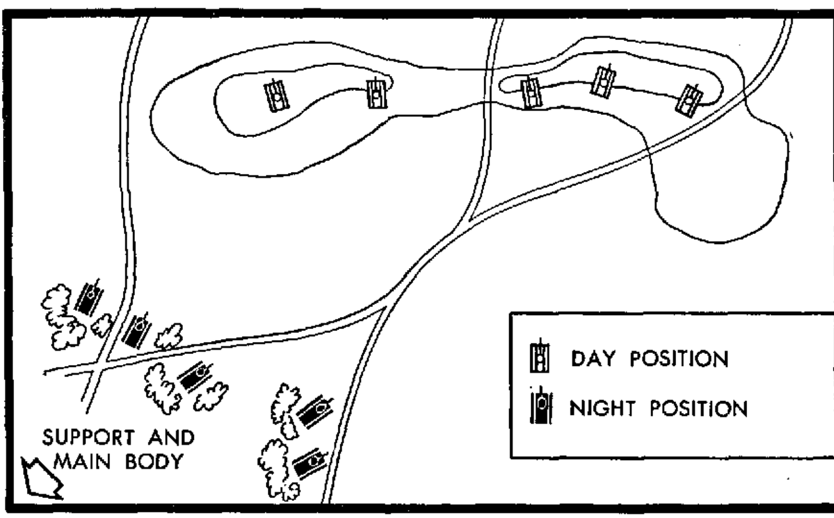


Figure 51. For daytime positions, fields of fire, observation, cover and concealment, and the presence of natural obstacles are all desirable. At night, tanks should be drawn in closer, occupying their new positions before dark if possible.

b. The outposts are placed on the best defensive ground available, to cover likely routes of enemy approach. For daytime positions, fields of fire, observation, cover and concealment, and the presence of natural obstacles are all desirable, in the order given. At night, tanks should be drawn in closer. They should occupy their new positions before dark unless the enemy has good observation of the area (fig. 51).

c. After selecting a primary position, each tank commander selects alternate and supplementary positions and reconnoiters satisfactory routes to them. Range cards are prepared for each position. A good range card must be complete, simple, and easily read. Two of the range cards which meet this basic requirement are the *circular* and

the *sketch* range cards (figs. 52 and 53). For details, see FM 17–12. Roadblocks may be improved by using felled trees, farm implements, abandoned vehicles, or antitank mines. Roadblocks should be covered by tank and armored infantry fires. Two or more sentries should be posted at each block, to warn friendly troops of the location of any mines employed in its defense and to halt and arrest suspicious

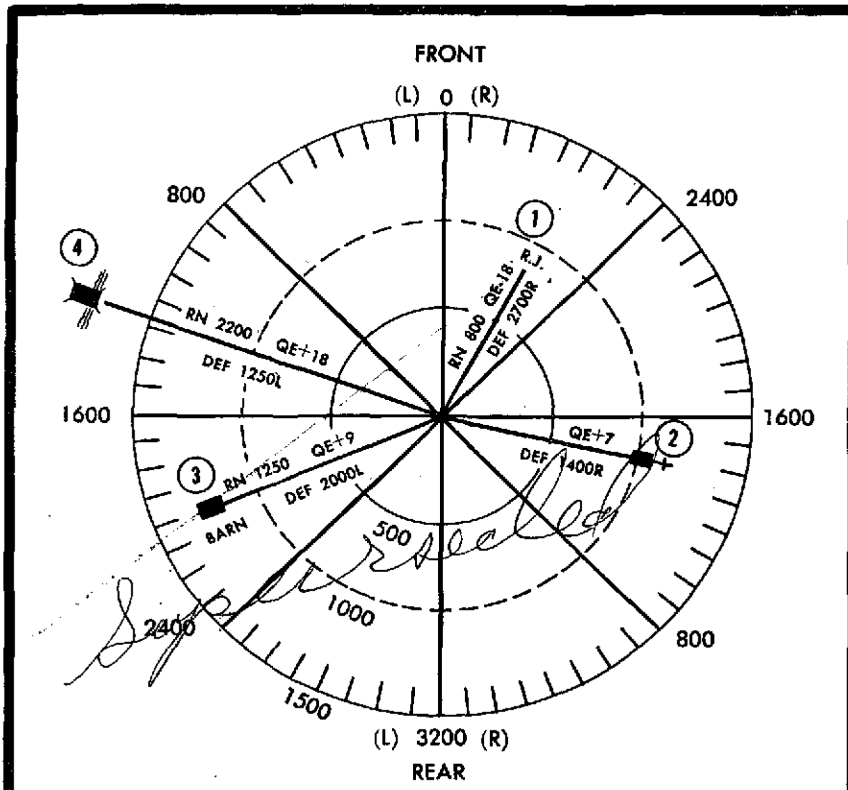


Figure 52. Circular range card.

persons. These sentinels learn the mission of any friendly reconnaissance units passing through the roadblocks, and explain the local situation to them if necessary.

d. The platoon leader establishes observation posts (listening posts at night) to the front of each of his outposts. Each outpost normally consists of a section of tanks supported by armored infantry. If no armored infantry are teamed with the tank platoon, one man is dismounted from each tank to serve as sentinel and observer. The platoon leader also establishes contact with adjacent friendly units.

e. In order to insure hits on enemy personnel or vehicles advancing on roads when observation is poor, tanks should be sited to fire down

the roads. Daytime positions can be at some distance to a flank, where hostile forces are less likely to suspect their presence.

f. If an armored infantry unit is teamed with the tank platoon, a part of it may form one or more outposts on terrain which would be difficult or impassable for the tanks. If this is done, the platoon leader arranges to support the armored infantry with the fire of at least one section of his tanks.

g. As soon as his sector is organized, the platoon leader reports his exact dispositions to his company commander, submitting a sketch

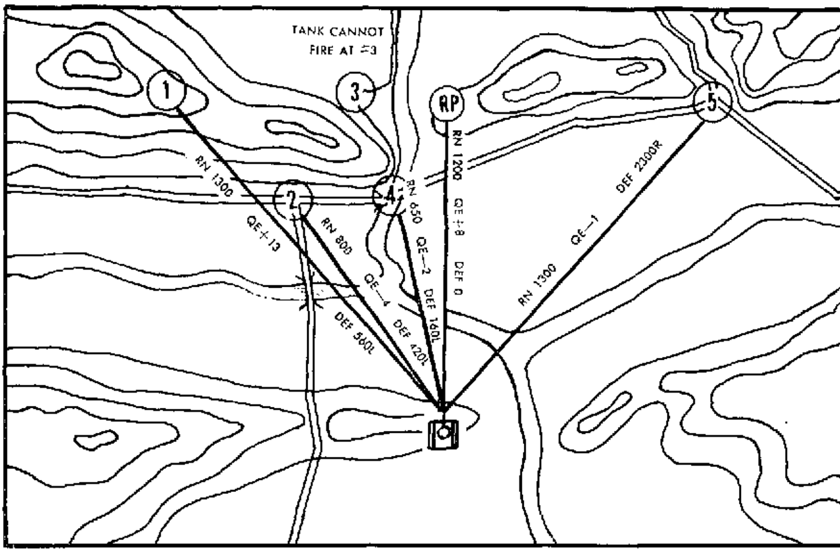


Figure 53. Sketch range card.

whenever possible. He requests artillery or mortar concentrations to cover routes the enemy may use and any gaps in his coverage of his front.

h. If the enemy attacks, the observation posts give warning and maintain contact with the enemy if forced to withdraw. The platoon leader reports the situation, calls for supporting fires, and holds his position. If the enemy force is small, he may ambush or counterattack it. He holds his outpost position until relieved or ordered to withdraw.

74. Employment of Patrols

a. Patrols are small tactical units employed to gain information and to insure security (FM 21–75). Tank units seldom act as patrols. Their tankers should be employed to man the tanks. A tank cannot be used where stealth is desired. In some fast-moving, fluid situations, tank units can be used to advantage in patrols, for example,

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when it is necessary to establish physical liaison with an adjacent unit and the area to be moved through contains enemy forces. Tank units participating in patrol actions should be tactically self-sufficient and prepared to engage in combat operations to accomplish their mission.

b. When tank units are employed in patrols, they should be accompanied by armored infantry.

c. Tanks on patrol must not become roadbound. Crew members should be prepared to dismount and reconnoiter critical areas on foot.

CHAPTER 3

OFFENSIVE OPERATIONS

Section I. GENERAL

75. General

All aspects of offensive operations by small armor units are covered in FM 17–1; therefore, this chapter is abbreviated in scope and subject coverage. It deals primarily with the tactics and techniques of offensive operations at tank company and platoon level.

76. The Armor Battalion in the Offense, General

a. The armor battalion may conduct offensive actions without attachments or as a battalion task force, normally as part of a combat command. The higher headquarters assigns the mission or missions; designates the axis of advance, zone, or frontage; designates supporting and attached units; and fixes the time of attack.

b. The tank company attacks as part of the armor battalion either to destroy the enemy directly or to inflict such damage upon the enemy that he will be forced to surrender. The tank company commander formulates his plan based upon the battalion attack order. This usually means that the tank company, in order to accomplish its task of destroying the enemy, will attack a physical objective, such as a critical terrain feature which is important to the overall scheme of maneuver, or a communication center. Once the company objective has been designated, the coordinated efforts of the entire company are directed toward attacking, seizing, and securing that objective, and preparing to continue the attack.

77. Distribution of Forces in the Attack

The attacking force usually employs two elements, the maneuvering force and the base of fire (pars. 240–243, FM 17–1).

Section II. PREPARATION FOR THE ATTACK

78. Armor Battalion

The commander of the armor battalion receives his mission from a higher commander, who also designates the units to be attached and support to be made available. The battalion commander makes

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a personal reconnaissance and an estimate of the situation. He then plans his attack and briefs the attached units. These steps are as detailed as the time and enemy situation will allow. Often, in fast-moving, fluid situations, these actions must be completed in a comparatively short period of time. His plan of attack includes supporting fires by both the artillery and the battalion support weapons and provides for the use of tactical air, if available. He then issues the order to the key personnel of the battalion. He often takes two or more of these steps concurrently and uses members of his staff to work out many of the details.

79. Elements of the Battalion Plan of Attack

Upon receipt of the plan of attack, or attack order, from higher headquarters, the battalion commander begins to formulate his plan of attack. The plan of attack includes the *plan of maneuver* and the *fire-support plan* (par. 260, FM 17–1).

80. Tank Company and Platoon—Preparation for the Attack

a. The tank company may attack as a company or as a tank company team of a battalion task force. The battalion order assigns the company mission and designates the supporting and attached units, along with other pertinent details that the company commander must know in order to accomplish the mission.

b. Before an attack, the tank company may assemble in an area designated by the battalion commander. Here detailed preparations for the attack are completed (pars. 226–232 and 244–258, FM 17–1). When the tank company attacks from march column to exploit a situation, it normally moves directly into the attack without occupying an assembly area. However, if time and the enemy situation permit, the tank company will use an assembly area, an attack position, and a line of departure, and will designate an axis of supply and evacuation, in executing an attack on a designated objective. On occasion—for example, when the unit is planning a surprise daylight attack—it may be advisable for the assault units to move into a combination assembly area and attack position during darkness. Here they make combat groupings and refuel, conduct maintenance, and resupply, then launch the attack (fig. 54).

c. Normally, while the company is preparing for the attack, the company commander joins the battalion commander to receive the attack order. He usually takes with him the individuals necessary to plan the attack, including a messenger. The executive officer normally remains with the company and makes certain that the unit is ready for combat. All vehicles and weapons are inspected, company radio nets are checked (unless listening silence is in effect), and the necessary resupply of ammunition, fuel and lubricants, and rations is accomplished. If the company is attached to another unit,

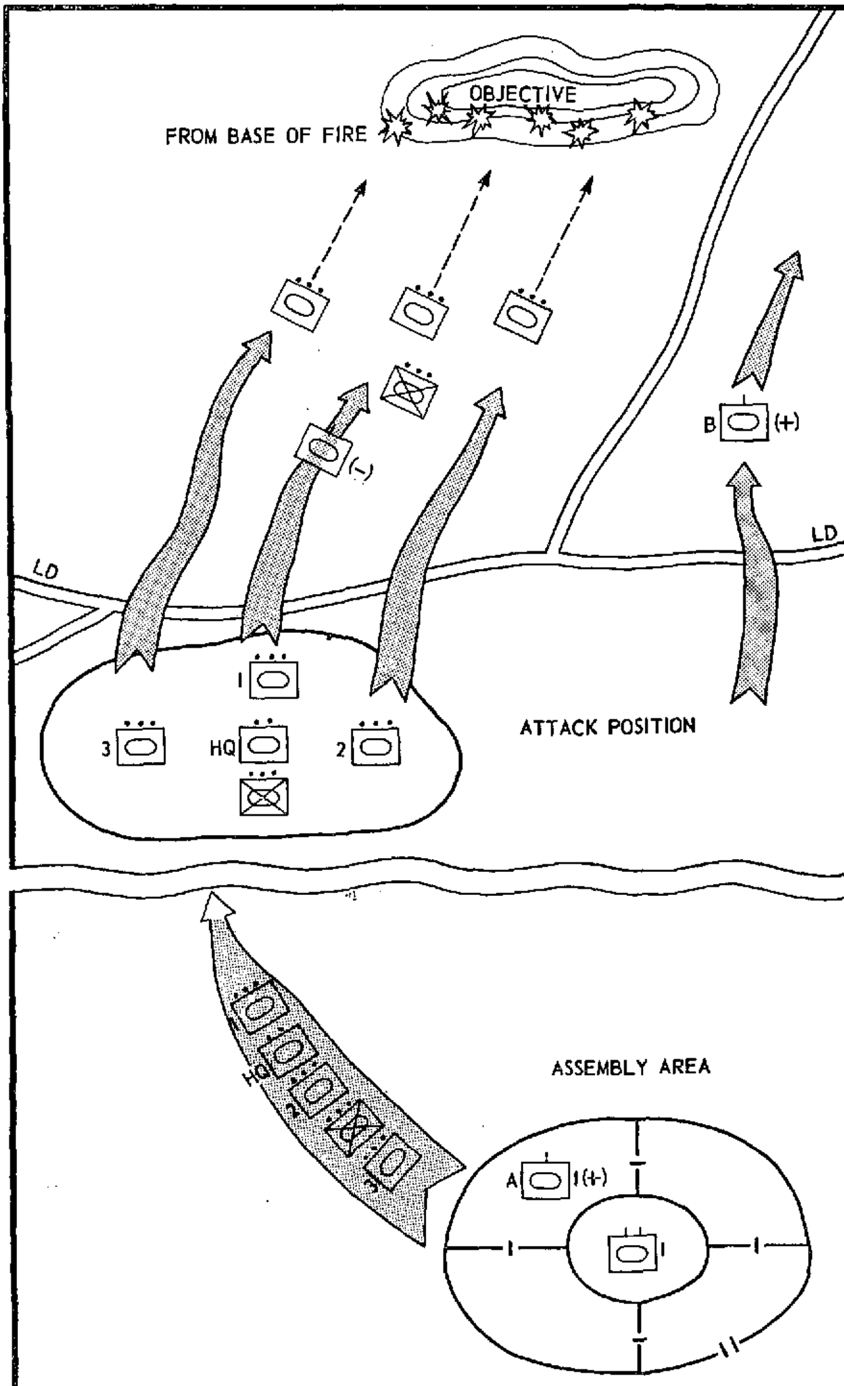


Figure 54. Tank company team attack.

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the company commander contacts the commander of that unit. Commanders of any units or elements attached to the tank company will contact the company commander. It must be borne in mind, however, that the application of these techniques to all attacks is limited by the time available for preparation and planning the attack.

81. Company Commander's Actions Prior to Attack

The tank company commander's preparations for the attack normally consist of coordination with units of other arms, planning and making a reconnaissance, making an estimate of the situation, forming a plan of attack, issuing his oral attack order, and moving the company to the attack position. At all times he actively supervises the execution of preparations and orders.

82. Coordination With Other Units Prior to Attack

a. Coordination begins as soon as the composition of the various teams of combined arms is announced by the battalion commander. The unit commanders involved immediately contact the commanders of the company teams to which they are attached and make all necessary preliminary arrangements concerning communication, transportation, supplies, liaison, and reconnaissance.

b. Further coordination is accomplished during the reconnaissance. If the attack is to be made through friendly infantry, the tank company commander, as directed by the battalion commander, contacts the infantry commander in his zone and coordinates the details of his passage through the infantry position (pars. 307–309, FM 17–1).

c. All tank company personnel, as well as attached armored infantry or engineer units, are oriented concerning the plan of supporting arms and weapons. Every man should know what the other elements of the combined-arms team are going to do and when they are to do it.

83. Reconnaissance Prior to Attack

a. Planning the Reconnaissance. After receiving the attack order, the tank company commander initiates and coordinates reconnaissance within his unit and attached units. The reconnaissance is planned from a map in order to save time and to insure covering critical terrain features during the actual ground reconnaissance. The tank company commander makes this map study in conjunction with the attached unit commanders and his artillery forward observer.

b. Making the Reconnaissance. The tank company commander, platoon leaders, and artillery forward observer reconnoiter together whenever the situation permits (fig. 55). They select a vantage point from which they can observe the area over which the team is to attack. They also pay particular attention to their attack position and the routes from the attack position to the line of departure.

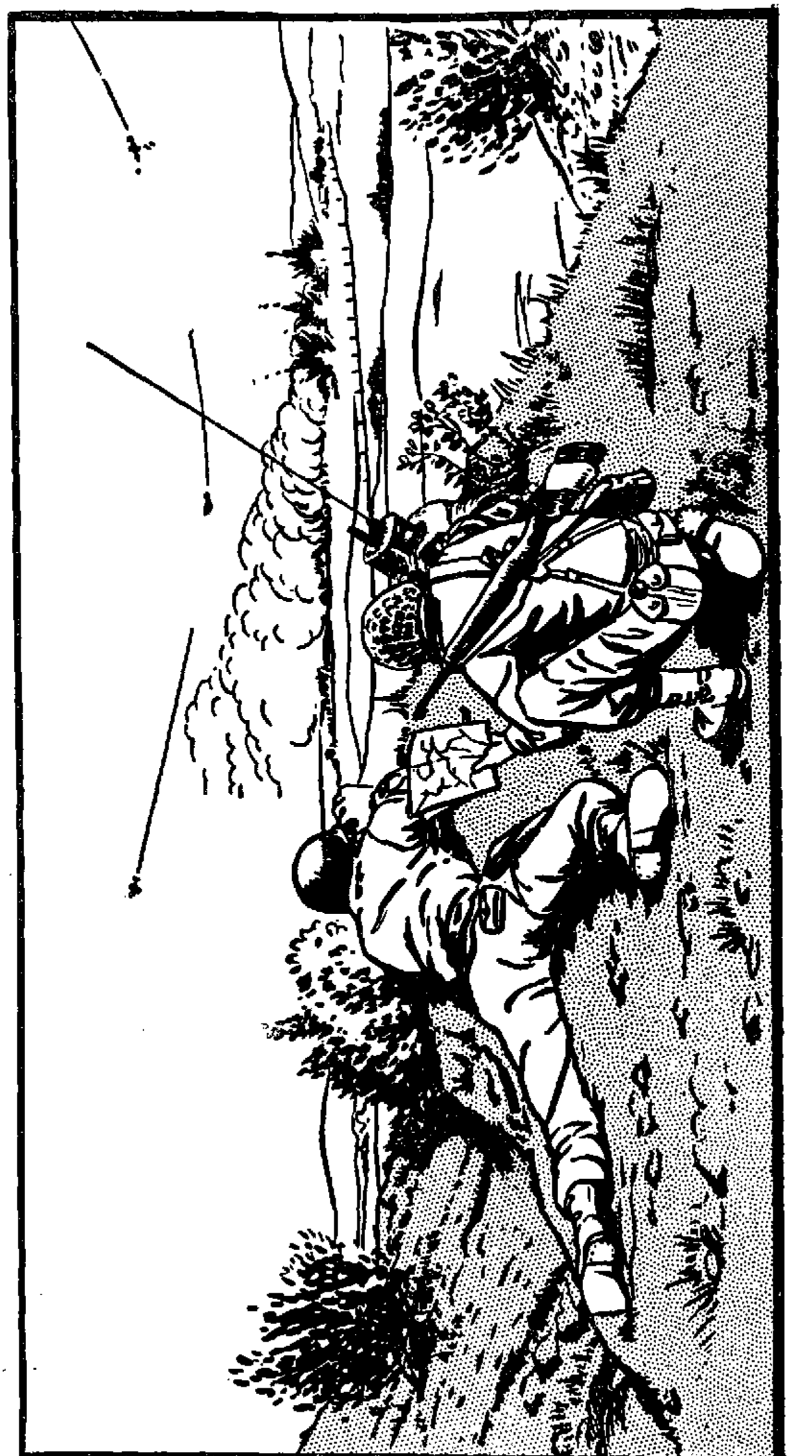


Figure 55. The commanders of the different units in each team of combined arms make their reconnaissance together.

84. Estimate of the Situation

See paragraphs 91 through 93, FM 17–1.

85. Company Plan of Attack

Following the ground reconnaissance and the estimate of the situation, the tank company commander develops his plan of attack in conjunction with the platoon leaders and the artillery forward observer. He has decided, from his estimate of the situation, which course of action will best enable his company to accomplish its assigned mission. The plan of attack will include the *who*, *what*, *when*, *where*, and possibly *how* and *why* details of the company's actions in carrying out the assigned mission. In developing the plan of attack, the company commander should consider exactly how he will organize and maneuver his force to accomplish the mission, and also how he can best utilize the available supporting fires (par. 260, FM 17–1).

86. Organization of the Company Team for Attack

a. In developing his plan of attack, the company commander should insure that the team of combined arms is organized to maintain the tactical integrity of units to the maximum degree. As an example, when an armored rifle platoon is attached to a tank company, it should operate as a complete unit under its commander. The attached armored rifle platoon leader will, in this case, take his orders from the tank company commander, and then will issue orders to his platoon.

b. Normally, it is undesirable to reduce elements of the combined-arms teams below the size of platoon. It is as undesirable to split up armored rifle platoons as it is to split up tank platoons. It is undesirable to split up a tank company reinforced with an armored rifle platoon into subteams of tank platoons and rifle squads, except in such cases as the following:

(1) When operating in extremely close country, such as thick woods or jungle, where visual contact between dismounted personnel and tanks is extremely difficult and the ability to support each other is thereby affected.

(2) When forming march outposts or similar small security teams.

c. For additional discussion of organization for combat, see paragraphs 29 through 35, this manual, and paragraphs 47 and 48, FM 17–1.

87. Choice of Elements to Lead the Attack

See paragraph 272, FM 17–1.

88. The Attack Order

See paragraph 273, FM 17–1.

89. Movement to Attack Position

See paragraph 274, FM 17–1.

90. Actions in the Attack Position

a. Armor offensive operations normally contemplate occupation of the attack position for the shortest possible time; units preferably move through, deployed in combat formation, without halting. If, however, events force the unit to remain in the attack position for an appreciable period, the following should be accomplished under supervision of the company commander and platoon leaders—

(1) Establish local security and make maximum use of cover and concealment.

(2) Make final check of the unit, to include formation.

(3) Make last-minute changes if required.

(4) Issue last-minute orders.

(5) Report readiness to higher commander.

b. Each tank commander must insure that his tank is in the best possible condition before moving out. It is essential that each tank be fully supplied with fuel, lubricants, ammunition, and emergency rations and that it have no mechanical difficulties.

c. The actions of the tank commander in the attack position include—

(1) Directing the tank into position.

(2) Making final check on the crew and receiving their reports on the condition of the tank.

(3) Receiving any last-minute changes in orders and orienting the crew on such changes.

(4) Insuring that the crew members remain alert and that security is established.

(5) Reporting readiness to platoon sergeant or platoon leader.

d. The actions of the other members of the tank crew in the attack position include—

(1) Making last-minute checks on vehicle and equipment.

(2) Correcting all minor deficiencies.

(3) Providing security for the tank as directed by the tank commander.

(4) Reporting readiness to tank commander when equipment check and preparations are complete.

Section III. CONDUCT OF THE ATTACK

91. Fire and Movement in the Attack

Fire and movement is a technique employed by and within the maneuvering force to advance on the objective (par 276, FM 17–1). Tank companies fight by fire and movement. Fire neutralizes, de-

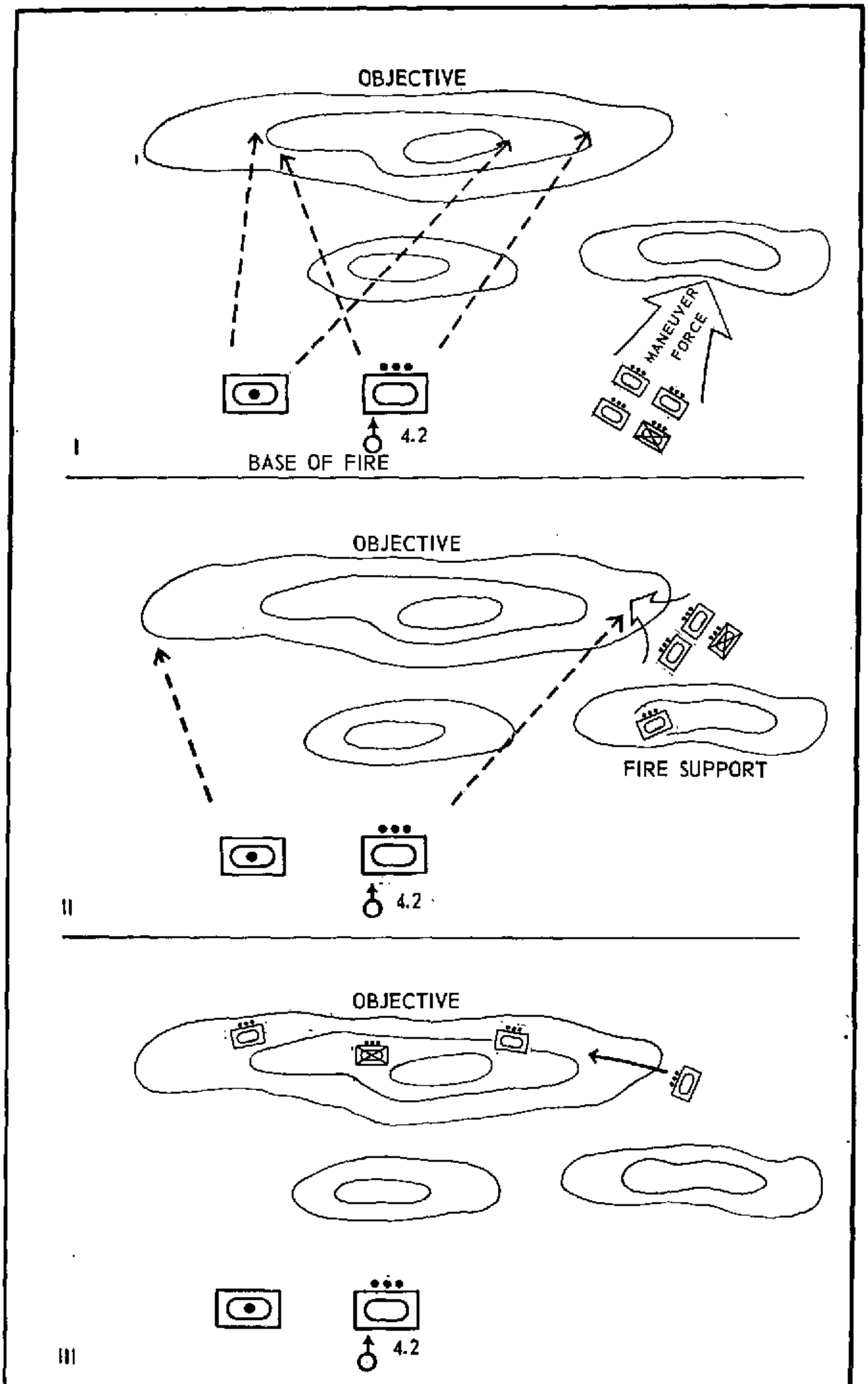


Figure 56. Fire and movement as they apply to the tank company team (supported by elements of the battalion).

moralizes, and destroys those enemy forces it can reach. Movement brings this firepower into new and more advantageous positions, from which it extends and completes its work of destruction. Examples of fire and movement, as they apply to the tank company team (supported by elements of the battalion), are shown in figure 56.

92. Battle Reconnaissance

a. General. Battle reconnaissance is made by all elements of the command. All commanders are alert to report information concerning—

(1) Location of antitank weapons, mines, and obstacles.
(2) Changes in location of friendly troops.
(3) Progress of the attack.
(4) Avenues of approach to the objective.
(5) Changes in enemy dispositions.
(6) Arrival of enemy reinforcements.
(7) Enemy air and tank attacks.
(8) Probable direction of enemy counterattacks.

b. Reconnaissance by Fire.

(1) An attacking tank unit is frequently able to develop the situation and obtain a degree of security and protection from surprise by use of reconnaissance by fire. Leading elements fire into the general areas where enemy positions may be suspected in an attempt to cause the enemy to disclose his presence by movement or return of fire (figs. 57 and 58).
(2) Reconnaissance by fire is not conducted until the attack has been launched, otherwise the attacking unit would prematurely disclose its position together with its probable intention of attacking. However, during the attack, both assault and support elements make liberal use of fire to locate and neutralize suspected enemy weapons.

c. Army Aircraft. Air observers can report the progress of the attack, hostile reactions to the attack, location of obstacles and antitank weapons, and indications of hostile tank counterattacks. They must be particularly alert for hostile counterattacks during reorganization. By monitoring the aircraft radio transmissions, commanders immediately obtain current information.

93. Methods of Movement in Attack

Whenever possible, tanks advance in mass. They proceed to the objective as rapidly as possible. Rapid movement to the objective and continuous supporting fire on the objective shorten the time of exposure to enemy fire and lessen the tank and personnel casualties. The advance may be made by successive bounds or alternating bounds (par. 278, FM 17-1).

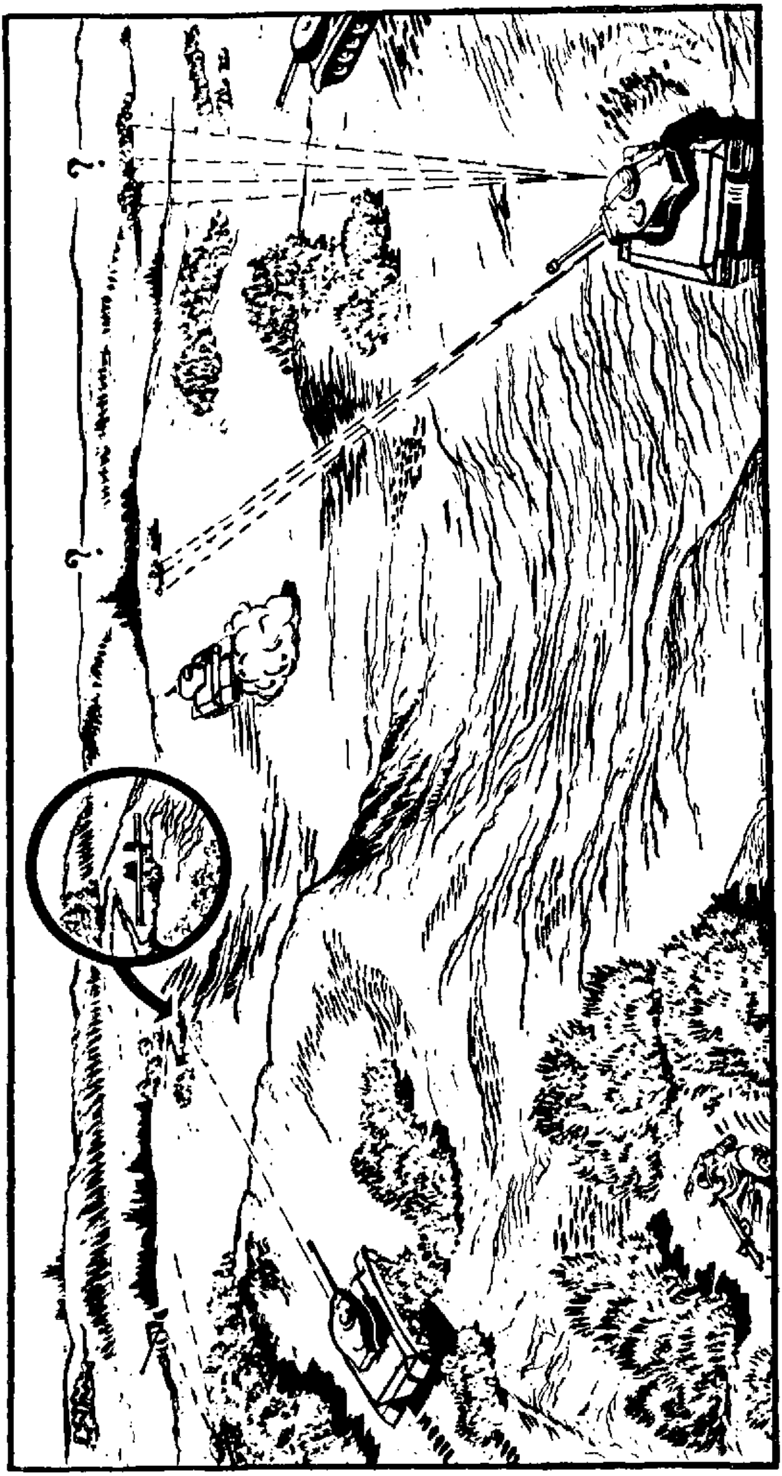


Figure 57. Tanks make liberal use of reconnaissance by fire during the attack.

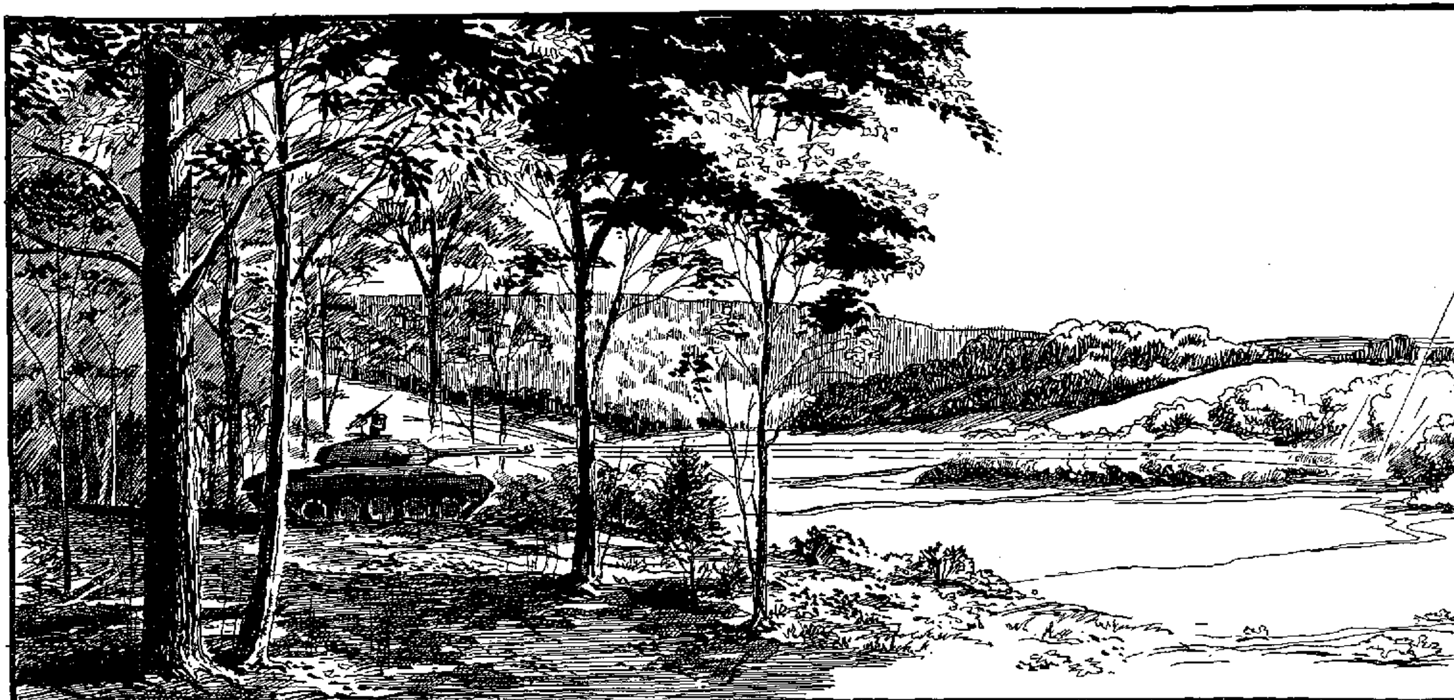


Figure 58. Reconnaissance by fire normally is employed during the attack. The coaxial machine guns and the caliber .50 machine gun are used at short ranges, the tank gun at longer ranges. The tank commander watches the strike through his binocular and picks up movements of enemy personnel or the exact location of a gun returning the fire.

94. Employment of the Maneuvering Force in the Attack

a. The maneuvering force advances rapidly, firing all of its weapons as soon as it is within effective range. Tanks fire on every suspected enemy position without seeking defilade or waiting for specific targets, which seldom are visible during an assault (par. 277, FM 17–1).

b. Tank units are distributed in depth throughout the battalion maneuvering force to meet enemy counterattacks against its flanks, to destroy any hostile forces which may have remained hidden until the leading tanks passed them, and to add overall depth to the attack. This depth usually is not found within the company proper, since the company normally will assault the objective in a deployed formation as part of the battalion maneuvering force.

c. For a discussion of methods and techniques of employing tanks and armored infantry in the attack, see paragraphs 286 and 289, FM 17–1.

95. Employment of Supporting Fires in the Attack

a. The base of fire continues to fire on the objective as long as necessary. Artillery airbursts may be placed over tanks and mounted armored infantry for their protection until such time as the armored infantry are required to dismount.

b. Supporting fires are lifted prior to the time the armored infantry with the maneuvering force dismount on the objective, unless specifically requested and adjusted by forward observers with the armored infantry.

c. When the uncommitted portion of the command initially supports by fire, it moves forward according to a prearranged plan or on the order of the higher commander. Artillery and mortars displace forward to new positions from which they can continue to support the assault by fire.

96. Actions of Company Leaders in the Attack

a. A tank platoon leader with the manuevering force controls his unit in the attack on the objective. While maintaining his platoon's place within the maneuvering force, he will vary the platoon formation to meet changes in the situation confronting him. His major concern is to push the attack.

b. The platoon leader's tank is a fighting vehicle constituting 20 percent of the platoon's firepower. The platoon normally fights as a unit with the platoon leader directing the action of his five tanks; his tank is not just a platoon headquarters. When the platoon fights in sections, one section of two tanks is normally controlled by the platoon sergeant; the other section is controlled by the platoon leader. The platoon leader still exercises command over the entire platoon.

While the platoon leader fights his tank, he has two constant considerations: He must not become so involved in fighting his own tank that he forgets to control the action of the whole platoon; and his actions must not indicate to the enemy that his is a command tank. When the platoon leader is fully occupied in fighting the platoon as a whole, he can assign his gunner a sector of fire, with the gunner firing at about the same rate as the rest of the tanks. He should not unnecessarily move his tank between sections; instead, he takes a position within the platoon where he can best control and influence the action. This serves to some extent to deceive the enemy as to who is the platoon leader.

(1) The platoon leader observes in all directions, noting any evidences of enemy activity and the progress of other friendly units.

(2) He keeps his company commander informed of the terrain and enemy resistance encountered, reporting any change in the situations.

(3) Upon meeting strong resistance or targets which his tanks cannot engage effectively, he requests supporting fires through his company commander. He adjusts artillery and mortar fire if a forward observer is not available.

c. (1) A tank company commander with the maneuvering force likewise controls the advance of his platoons. He keeps his battalion commander advised of all changes in the situation. He obtains artillery and mortar support through the artillery and mortar forward observers with his company, either on his own initiative upon encountering heavy resistance or on the request of a platoon leader. Similarly, airstrikes may be requested through the forward air controller.

(2) Formation in the attack must be changed frequently to meet changing situations.

d. The actions of the tank commander in the conduct of the attack include—

(1) Directing the movement of the tank in a sound tactical manner.

(2) Directing the fire of the tank weapons.

(3) Maintaining contact with the platoon leader (visual or radio).

(4) Making constant battle reconnaissance.

(5) Keeping the platoon leader informed of the situation.

97. Conduct of the Assault on the Objective

See paragraph 281, FM 17-1.

98. Actions on the Objective—General

See paragraph 282, FM 17-1.

99. Consolidation of the Objective

As soon as leading elements of the assaulting forces hit the objective, the following actions are taken with the greatest possible speed to destroy remaining enemy resistance, to prepare to move to dispersed locations to avoid presenting an atomic target, or to continue the attack on order.

a. The leading tanks take up deployed positions from which they can dominate the objective and destroy visible enemy weapons and personnel by fire (fig. 59). Tank commanders may employ hand grenades against dug-in enemy troops where the use of the tank guns might endanger friendly troops. If enemy tank hunters are quite active, the leading tank unit commander may request artillery air bursts over his position until friendly armored infantry arrive on the objective (fig. 60). Both tanks and armored infantry should keep off the sky line, and tanks must not cruise around aimlessly.

b. As he arrives on the objective, each tank platoon leader goes to his assigned sector and takes up a position where he can regain visual contact with, and full control of, his platoon. As the remaining tanks of his unit arrive, he establishes local security, posting observers to give warning of any enemy activity and contacting friendly units on his right and left (fig. 61). The company takes immediate action to—

(1) *Hold the objective against enemy counterattack.* The subordinate units' security measures are coordinated to provide for all-round observation and defense. Tanks are stationed to cover the logical avenues of enemy approach. The armored infantry organize a hasty defensive position. Through the artillery forward observers, arrangements are made for the supporting fires necessary to protect the newly captured positions.

(2) *Continue the attack.* The tank company commander makes a map and visual reconnaissance of the terrain between him and the next objective, and issues any fragmentary orders that may be necessary. Whenever necessary, guides are sent back to meet the supply trucks, company maintenance sections, and medical personnel. No action will be taken, however, which will interfere with immediate preparations for continuing the attack.

c. Troops on the objective continue to organize and improve their defensive positions until ordered to continue their advance. Measures to be employed against enemy counterattacks are determined before the attack and are included as part of the attack order.

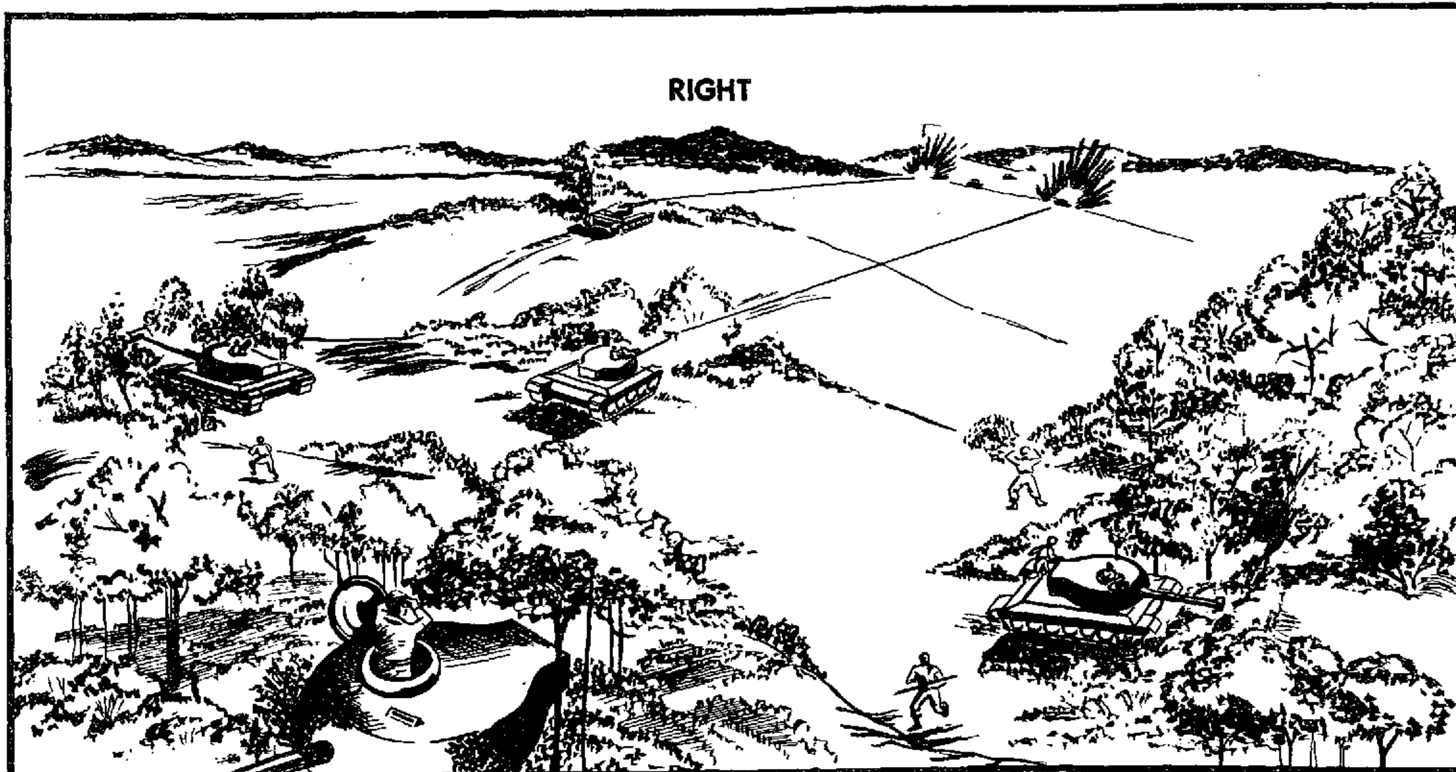


Figure 59. The leading tanks take up deployment positions from which they can dominate the objective and destroy enemy weapons by fire.

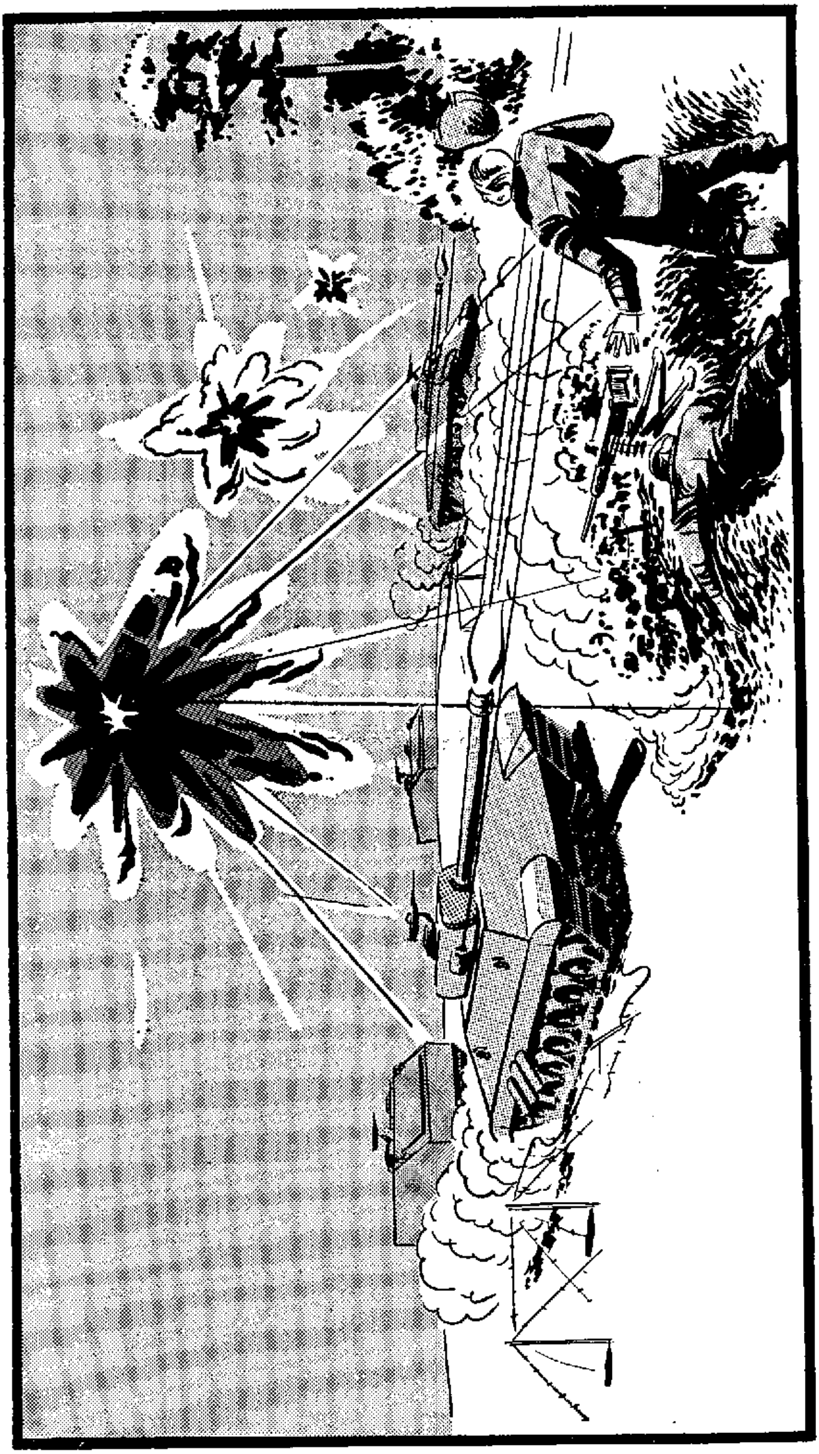


Figure 60. Tanks and armored infantry on the objective under artillery air bursts.

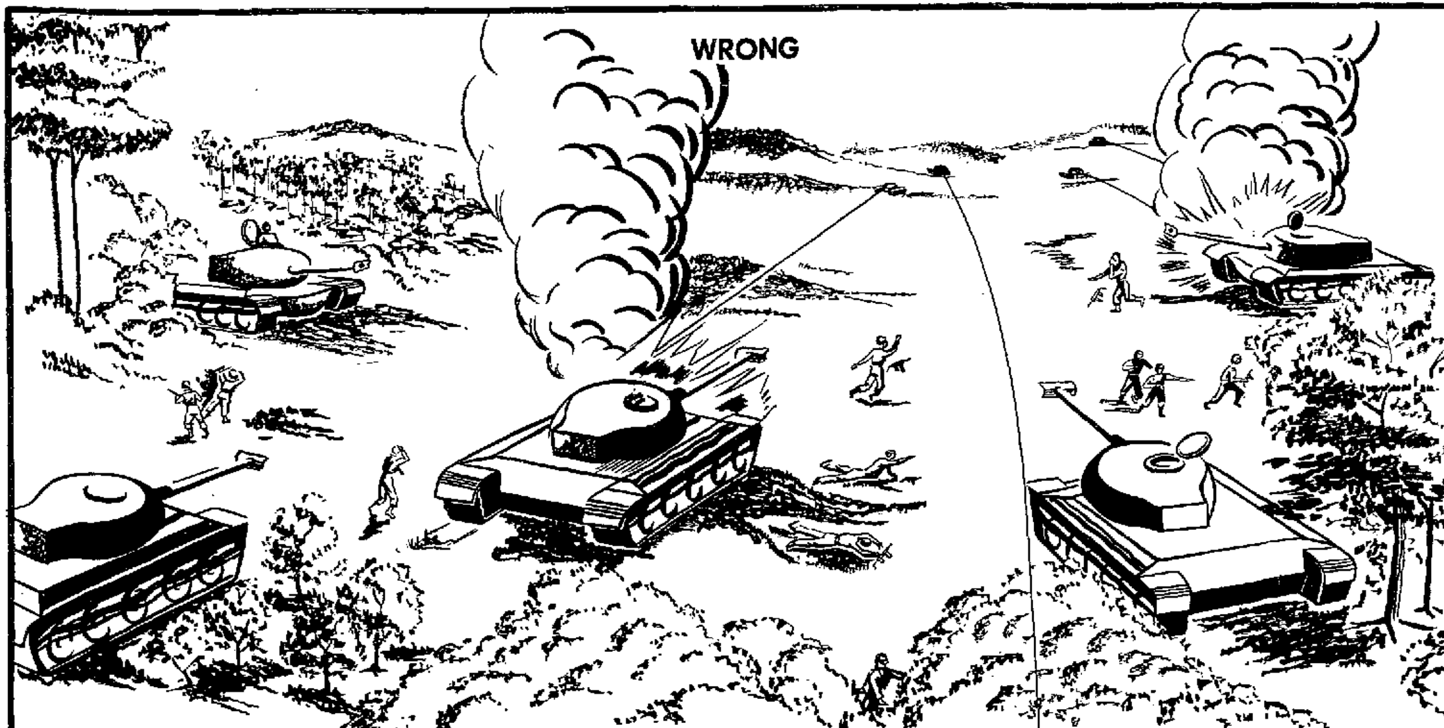


Figure 61. Tanks should rally on the objective within visual distance without crowding together. Servicing should be done only after proper security measures have been taken against counterattack.

100. Reorganization on the Objective

a. Reorganization must be rapid but thorough. Each tank commander reports his losses, ammunition expenditure, fuel status, and vehicle condition to his platoon leader, who consolidates this information for the company commander. He, in turn, reports to the battalion commander. These reports must be rendered as soon as possible, since they contain information needed in subsequent planning and orders.

b. If personnel losses are heavy enough to make such action necessary, tank crewmembers are reassigned. The crewmembers of any tanks which were disabled during the attack report forward to the objective, where they replace casualties.

c. Ammunition from disabled tanks may be divided among the others, particularly when resupply is likely to be delayed or difficult. The company maintenance section, following behind the advancing tanks, makes such repairs as the time available will allow.

101. Exploitation—General

The exploiting force pushes vigorously to reach the objective with the cess of battle, taking full advantage of the enemy's disorganized state to drive deep into his rear and complete his destruction and defeat. The exploiting force pushes vigorously to reach the objective with the maximum force in the shortest possible time. Objectives deep in the enemy rear normally are assigned to exploiting forces. Pursuit is a phase of exploitation which has as its object the destruction or capture of enemy forces. See paragraphs 294 through 306, FM 17-1.

102. Organization of an Armor Battalion Task Force on an Exploitation

The armor battalion task force must be so organized as to permit rapid deployment into attack formations from march column. Elements in the column must be so grouped that appropriate companies or teams are ready for the type of employment expected. The task force commander bases the task organization and order of march on the troops available, the enemy situation, the terrain, and the road space required for each subordinate element. The order of march must correspond to the order of anticipated employment (fig. 62).

103. Conduct of Exploitation by an Armor Battalion

In the conduct of an exploitation, combat action by the armor battalion will consist most frequently of short engagements launched from march column. When resistance is encountered which cannot be quickly overcome, the battalion either launches a coordinated attack or bypasses the resistance. A unit bypasses only with the permission of the next higher commander; this permission may be included in the mission.

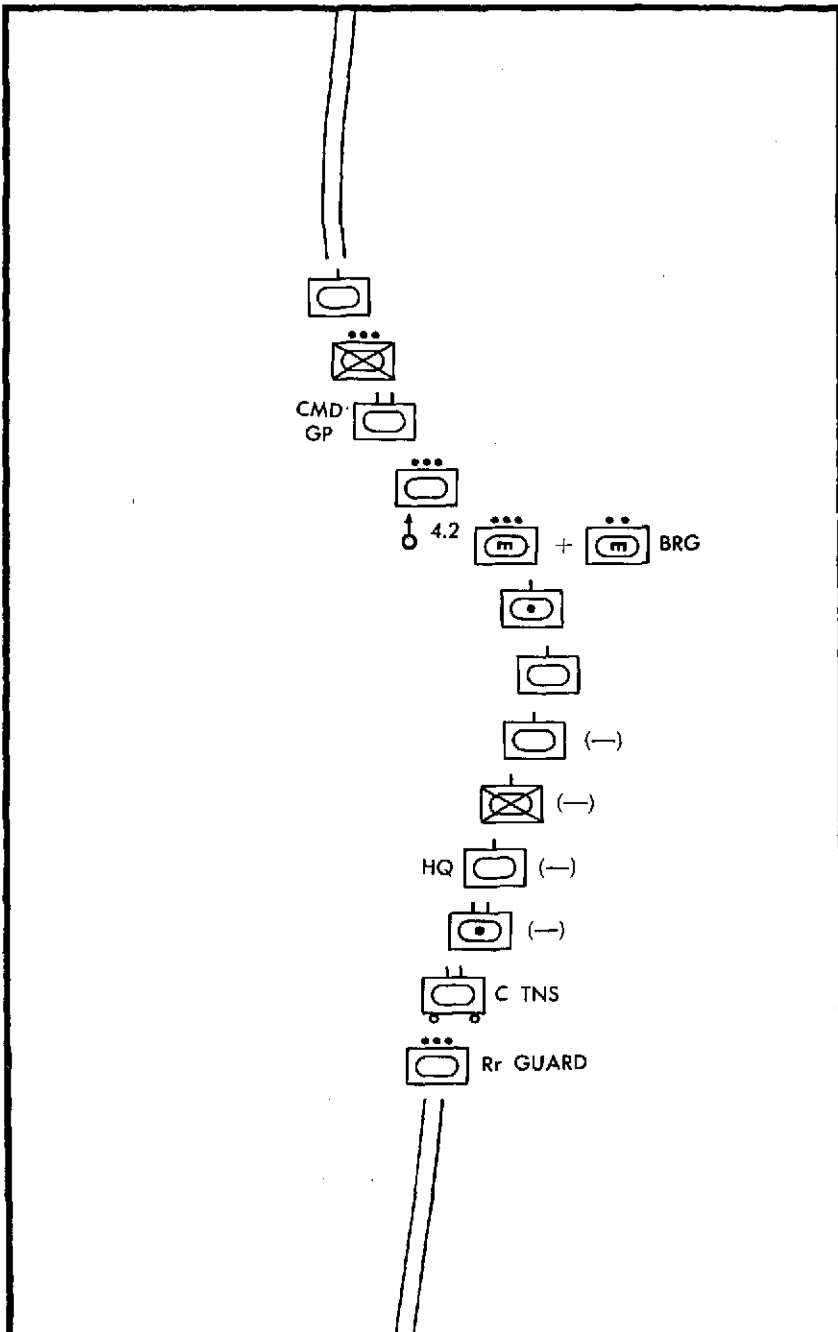


Figure 62. Task organization and order of march of armor battalion task force on exploitation.

104. Tank Company in Exploitation

The tank company normally is used as part of a larger exploiting force. However, when suitably reinforced with armored infantry, it is capable of limited independent action, such as reducing isolated strongpoints, seizing and holding critical defiles or key bridges, or acting as a flank guard. The tank company team may be used as the advance guard for a battalion task force on exploitation.

105. Attack From March Column—General

The attack from march column differs from the coordinated attack in that there is no time for elaborate preparations, such as detailed reconnaissance and deliberate planning. Instead, the tank unit must attack swiftly and in mass, obtaining the full effect of shock action with a minimum of delay. An attack from march column may occur during exploitation, pursuit, or a counterattack against a deep enemy penetration. An attack from march column demands speed and aggressiveness. The initiative must be seized and retained. Lacking specific orders, the company commander or the platoon leader takes whatever action he believes is required to carry out his assigned mission.

106. Attack From March Column Against Light Resistance

a. During pursuit and exploitation, there are numerous occasions when, because of surprise or inferiority of numbers or armament, the enemy cannot offer serious resistance. Columns of trucks or horse-drawn vehicles, towed antitank guns and artillery, infantry or horse cavalry in close formations, bivouacs, supply installations, and command posts are all profitable objectives.

b. Figure 63 shows an attack from march column by the leading tank platoon against light resistance. The leading section deploys and immediately takes the enemy position under fire. The platoon leader moves forward, makes a quick estimate of the situation, and plans his attack. All information pertaining to the situation is immediately reported to the company commander. The platoon leader orders the leading section to continue to fire on the enemy position. He then maneuvers his other section to the flank of the enemy position. Thus the platoon either overcomes the resistance with its organic weapons or develops the situation and reports to the advance guard commander in order that the remainder of the company may be employed if necessary to overcome the resistance.

107. Attack From March Column Against Heavy Resistance

a. If the enemy resistance is so heavy and stubborn that the leading elements can make little progress, the higher commander may reinforce these elements, change the direction of their advance, or put an alternate plan of attack into effect. When casualties are heavy, the

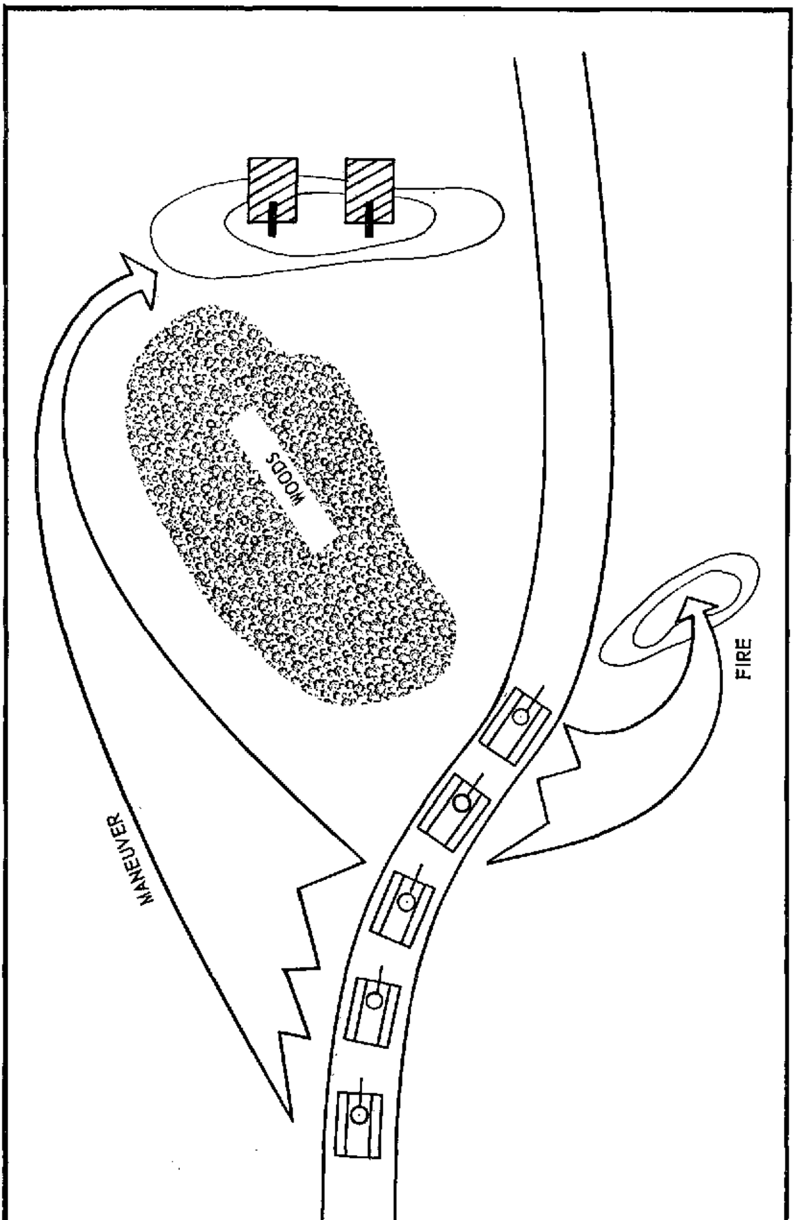


Figure 63. Attack from march column against light resistance.

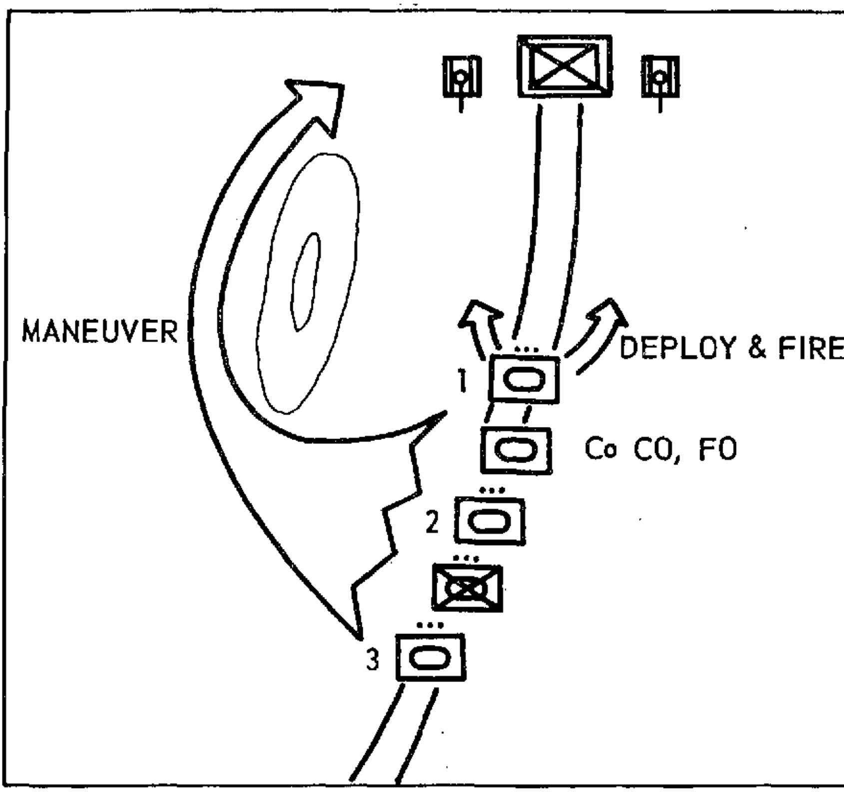


Figure 64. Attack from march column against heavy resistance.

leading elements may have to halt in a covered position, reorganize, and then continue to attack. This must be avoided unless absolutely necessary, since it too frequently presents the enemy with a stationary target.

b. Figure 64 shows an attack from march column by a tank company team against heavy resistance. Since the leading tank platoon was unable to overcome the resistance, it continued to develop the situation and reported the disposition and strength of the enemy to the company commander. The leading platoon, in this case, provides the time required for the deployment of the remainder of the team. The company commander has the leading platoon continue to fire from its deployed position while the remainder of the team maneuvers. Artillery and mortar fire are requested to support this type operation. Forward observers are usually present with the team, and the fires of the artillery and 4.2-inch mortar platoon are included in the plan of attack. The higher commander may order the resistance to be bypassed, and the team may be required to block or hold the enemy for the maneuver of the battalion. In a situation where the resistance is to be bypassed, the order to bypass must come from

the battalion commander or the next higher authority. If the leading platoon leader or team commander desires to bypass resistance, he must obtain permission from the battalion commander.

108. Attack From March Column—Reduction of a Roadblock

a. Most roadblocks will be located at narrow defiles where maneuver is difficult and will normally be defended by antitank guns, mines, and automatic weapons. The leading tank platoon leader makes a quick estimate and seeks to envelop the roadblock by employing the basic principle of fire and movement. All possible fire is at once brought to bear on the roadblock and its defenders. If tank maneuver is not possible, he deploys, takes defenses of the roadblock under fire, and reports to the company commander. In many cases armored infantry along with any accompanying engineers will be required to reduce the roadblock, with the tanks supporting by fire (FM 17–20). In addition, artillery and mortar fire support will be requested. No attempt should be made to overrun an obstacle with tanks; it may be mined and boobytrapped. Once the actual task of removing any barriers at the roadblock commences, tanks and tank dozers may be used to advantage to remove bulky objects such as logs.

b. Figure 65 shows an attack of a roadblock by a tank company team. The leading platoon was proceeding along the road in column.

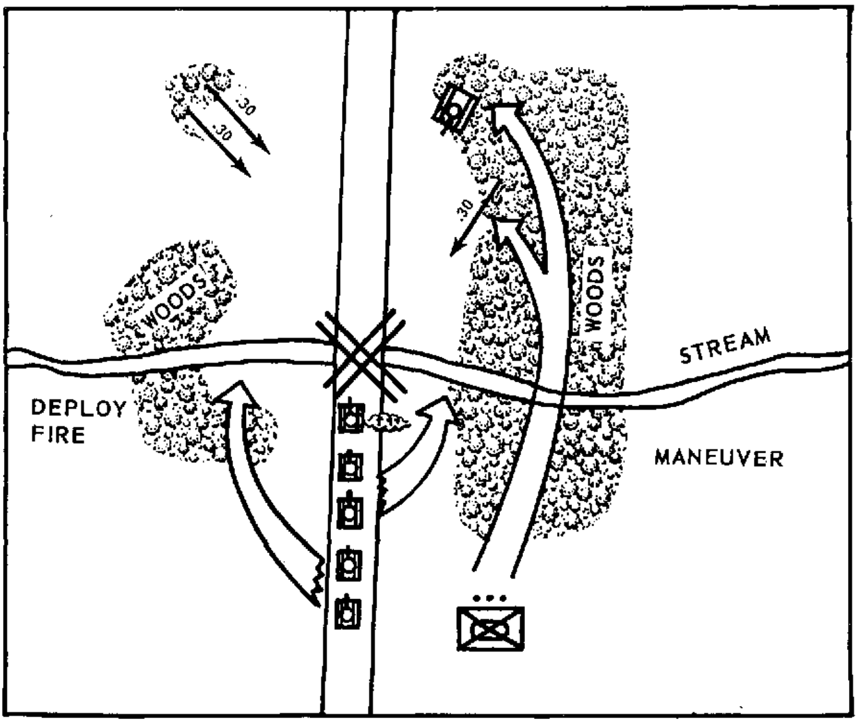


Figure 65. Attack from march column to reduce a roadblock.

When it approached the stream, it encountered a roadblock which was covered by antitank guns and automatic weapons. The platoon immediately deployed off the road and took the enemy positions under fire. The platoon leader made a quick estimate, determined that he could not move forward, and reported to the company commander. In this instance, the terrain prevents the tanks from enveloping the enemy position; they support by fire, along with available mortars and artillery, the maneuver of the armored rifle platoon. The armored rifle platoon maneuvers through the woods and closes with the enemy. The tanks and artillery then lift or shift their fires according to a prearranged plan. Once the enemy is either destroyed or dispersed, the armored rifle platoon and any supporting engineers remove the roadblock and the company continues on its mission.

Section IV. ADDITIONAL CONSIDERATIONS IN OFFENSIVE ACTION

109. General

See chapter 8, FM 17–1, for a discussion of considerations peculiar to the following:

a. Night attacks (pars. 310–318).

b. Attack of a fortified area (pars. 320–322).

c. Attack of a built-up area (pars. 323–329).

d. Attack of a defile (pars. 330 and 331).

e. Attack in woods (pars. 332–337).

f. Attack of a river line (pars. 338–342).

g. Minefield breaching (pars. 343–345).

C-1 P6 A.1 Added.

CHAPTER 4

DEFENSIVE OPERATIONS

Section I. GENERAL

110. General

a. There are two basic types of defense: *mobile defense* and *position defense.* In addition, armor units frequently employ the *perimeter defense*, in which they use techniques of both mobile defense and position defense (ch. 9, FM 17–1).

b. The commander organizes and conducts the defense through application of basic considerations which are discussed in paragraph 350, FM 17–1.

(1) Proper utilization of the terrain.
(2) Security.
(3) Mutual support.
(4) Defense in depth.
(5) All-round defense.
(6) Fire-support plan.
(7) Strengthening of defensive area.
(8) Flexibility.
(9) Maximum use of offensive action.
(10) Maximum dispersion against atomic attack consistent with the mission.

111. The Armored Division Armor Battalion, 90-mm, in the Mobile Defense

The armor battalion will normally be part of a larger unit which is conducting the mobile defense. It may be part of the fixing forces in the forward defensive area, form all or part of the striking force for a higher command, or, on occasion, act as the security force. When the battalion is conducting the mobile defense independently, it will establish its own security force, fixing forces, and striking force.

112. The Armor Battalion in Position Defense

The armor battalion normally should not be assigned a sector to defend in the position defense. In this type of defense, the armor battalion can best be employed as a reserve for a higher command.

113. The Armor Battalion in Perimeter Defense

The purpose of perimeter defense is primarily self-protection. It normally is conducted by armor units acting independently or when separated from friendly forces. The armor battalion may participate in the perimeter defense as part of a combat command.

Section II. ORGANIZATION OF THE DEFENSE

114. Organization of the Ground for Defense

Measures for increasing the effects of fire and movement take precedence over all other work in the defense. The ground is organized to assist in bringing accurate fire on the enemy while avoiding his fires, and to impede enemy movement while facilitating that of friendly elements. Every effort is made to take advantage of natural cover and concealment. Camouflage is used where necessary, with emphasis given to concealment from the air. Normal priority of work is—

a. Preparation of counterattack routes.

b. Preparation of defensive positions.

c. Strengthening the defensive position.

d. Preparation of routes for resupply and evacuation.

e. Establishment of a communication system, with emphasis on warning of enemy approach.

115. Preparation of Counterattack Routes

See paragraph 358, FM 17–1.

116. Preparation of Defensive Position

a. The battalion commander assigns defensive positions to his companies or company teams. Each company commander then reconnoiters his assigned sector and, on the basis of that reconnaissance and all available additional information, locates his platoon in such a manner as to cover avenues of approach into his sector. Successive reconnaissances by lower unit commanders finally result in fixing the exact distribution of the smallest units and their weapons (fig. 66).

b. As soon as the position is occupied, each unit improves its position. It clears fields of fire where necessary. However, widespread clearing may disclose the location of the position. Tanks are placed in hull defilade, and emplacements are dug for crew-served weapons. Obstacles are constructed across logical avenues of enemy approach (fig. 67).

c. Each tank position should possess good observation, fields of fire, concealment, and cover, and should be easily accessible. These positions should have natural protection from enemy fire. Positions

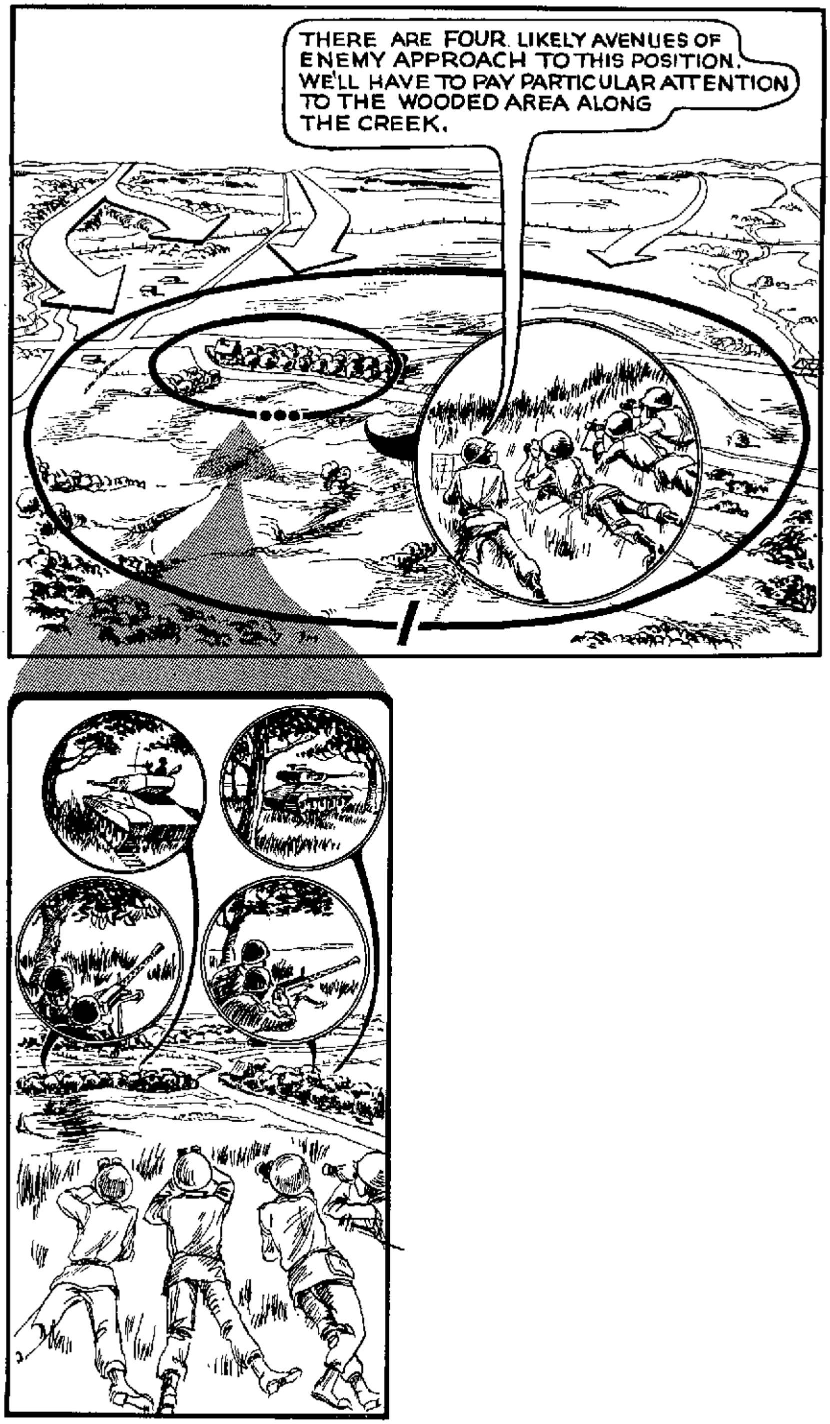


Figure 66. Commanders conduct reconnaissance, select positions, and plan the organization of the positions.

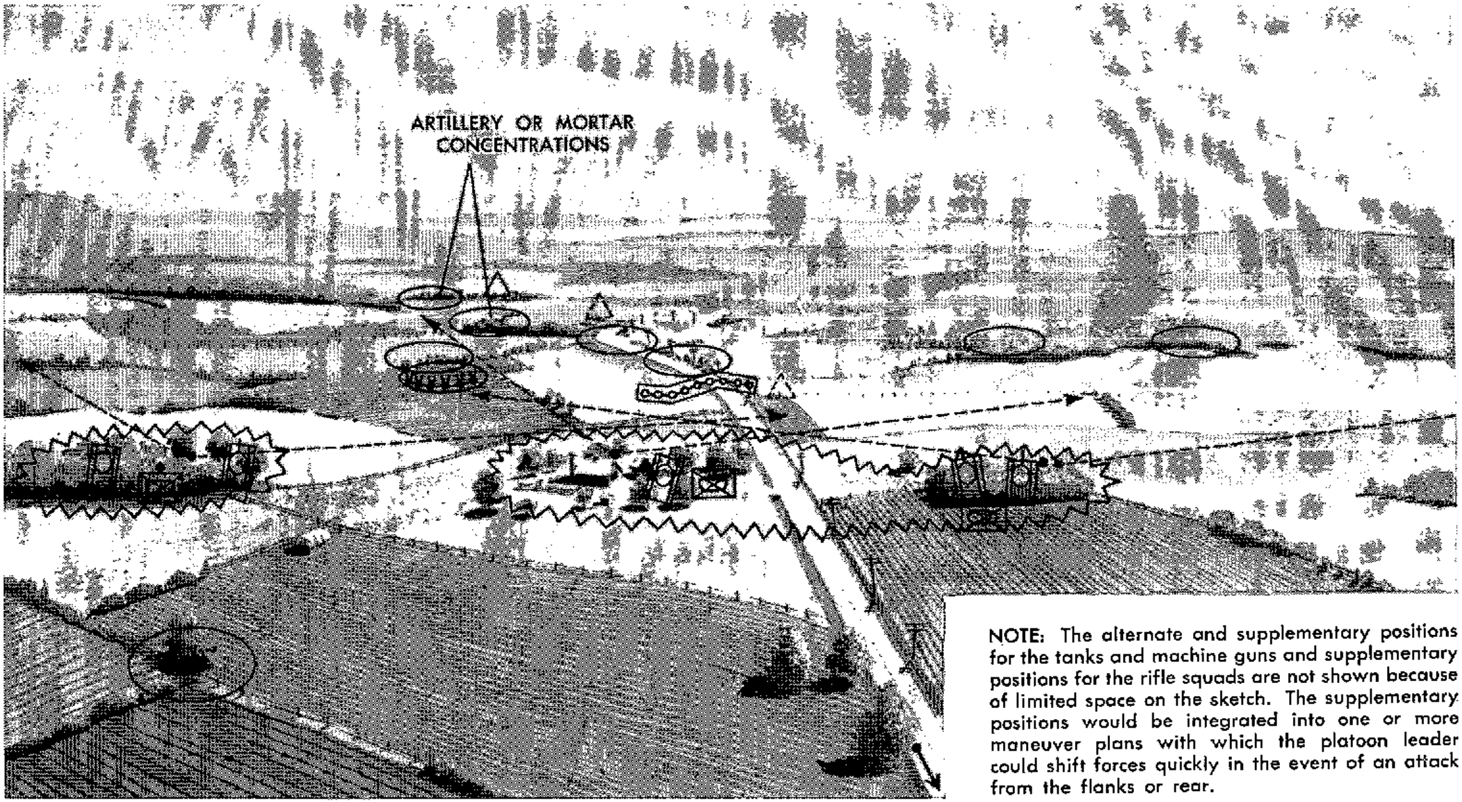


Figure 67. Organization of the position.

should not be selected close to landmarks or to such objects as lone trees or chimneys, on which the enemy artillery is likely to place fire. Routes between positions are selected, marked, and, if necessary, improved.

d. Range cards are prepared for all positions. When time permits, tank commanders and gunners reconnoiter the terrain within range of their weapons, actually measuring ranges to selected reference points along probable routes of enemy advance. This tends to insure that effective fire can be delivered in smoke, darkness, and fog. The tank platoon leader may request the extension or modification of artificial obstacles in his sector, to better protect his positions and to force the advancing enemy under the flanking fire of his tank guns. For Futher discussion, see FM 17-12.

e. Armored infantry, erecting any necessary camouflage to conceal their activity, dig in, citing their weapons to establish interlocking bands of fire, prepared to fight in any direction.

f. Command posts, mortars, and service units are normally incorporated within the defensive positions for protection. They should be located in concealed, defiladed positions. The armored personnel carriers are not sent back to assembly areas but are integrated into the all-round defense of the position. The armored personnel carriers provide mobility, increased means of radio communication, and combat supply and evacuation. Their caliber .50 machine guns provide additional firepower for the defense.

g. For further discussion, see paragraph 359, FM 17-1.

117. Strengthening the Defensive Position

See paragraph 360, FM 17-1.

17-1 See FM 17-1.

118. Preparation of Routes for Resupply and Evacuation

See paragraph 362, FM 17-1.

119. Command and Control in Defense

See paragraph 363, FM 17-1.

120. Fire Planning in Defense

See paragraph 364, FM 17-1.

Section III. MOBILE DEFENSE

121. General

Elements of the mobile defense consist of *security forces*, *fixing forces*, and the *striking force*. An armor battalion may participate in mobile defense as all or part of any of these elements.

122. Armor Battalion as a Security Force

When an armored division is conducting a mobile defense, the division's armored cavalry squadron normally is assigned the security

force mission. If the situation requires, however, an armor battalion task force may be assigned this mission. To accomplish such a mission, the armor battalion must be reinforced with armored infantry and engineers, and must be supported by field artillery and Army aviation. The battalion task force organizes company teams in order to operate effectively across the broad front required by this type mission. Once organized for combat, the armor battalion task force conducts a security force operation as discussed in paragraph 375, FM 17-1.

123. Armor Battalion Task Force as Part of a Fixing Force

a. General. In the mobile defense, the armor battalion may be assigned a sector to defend in the combat command defensive area. When so employed, the battalion normally is reinforced with armored infantry. It may be either a tank-heavy or a balanced task force.

b. Reconnaissance of the Battalion Sector. As soon as he is given his mission and assigned a defensive sector, the armor battalion task force commander immediately reconnoiters his area as completely and thoroughly as time and the situation permits. He makes a map reconnaissance and, if possible, a ground and air reconnaissance. He determines the likely avenues of approach available to the enemy and the terrain which dominates these avenues.

c. Designation of Company Team Positions by Battalion.

(1) Within the sector designated for the battalion task force to occupy, the commander selects company team positions. In selecting these positions the commander considers critical terrain, observation and fields of fire, cover and concealment, natural obstacles, possible avenues of enemy approach, the overall width of the battalion task force sector, and the killing grounds selected by the next higher headquarters.

(2) After determining the sectors of the forward edge of the battle area which the company teams will be assigned, the commander designates strong points for them to occupy either initially or on order. These strong points are selected to deny critical terrain to the enemy, to canalize the enemy into the selected killing grounds, and to facilitate the attack of the striking force. The size of the strong point will dictate the strength of the unit thereon. In certain situations, the task force commander may order one of his teams to initially occupy one or more strong points (fig. 68).

d. Coverage of Avenues of Approach. Normally, an armor battalion task force is assigned a sector covering the most likely avenues of hostile armor approach. Within that sector, any attached armored infantry are used to cover the most likely avenues of hostile infantry approach and to add depth to the battalion position. The armored infantry must provide close-in protection for the tanks.

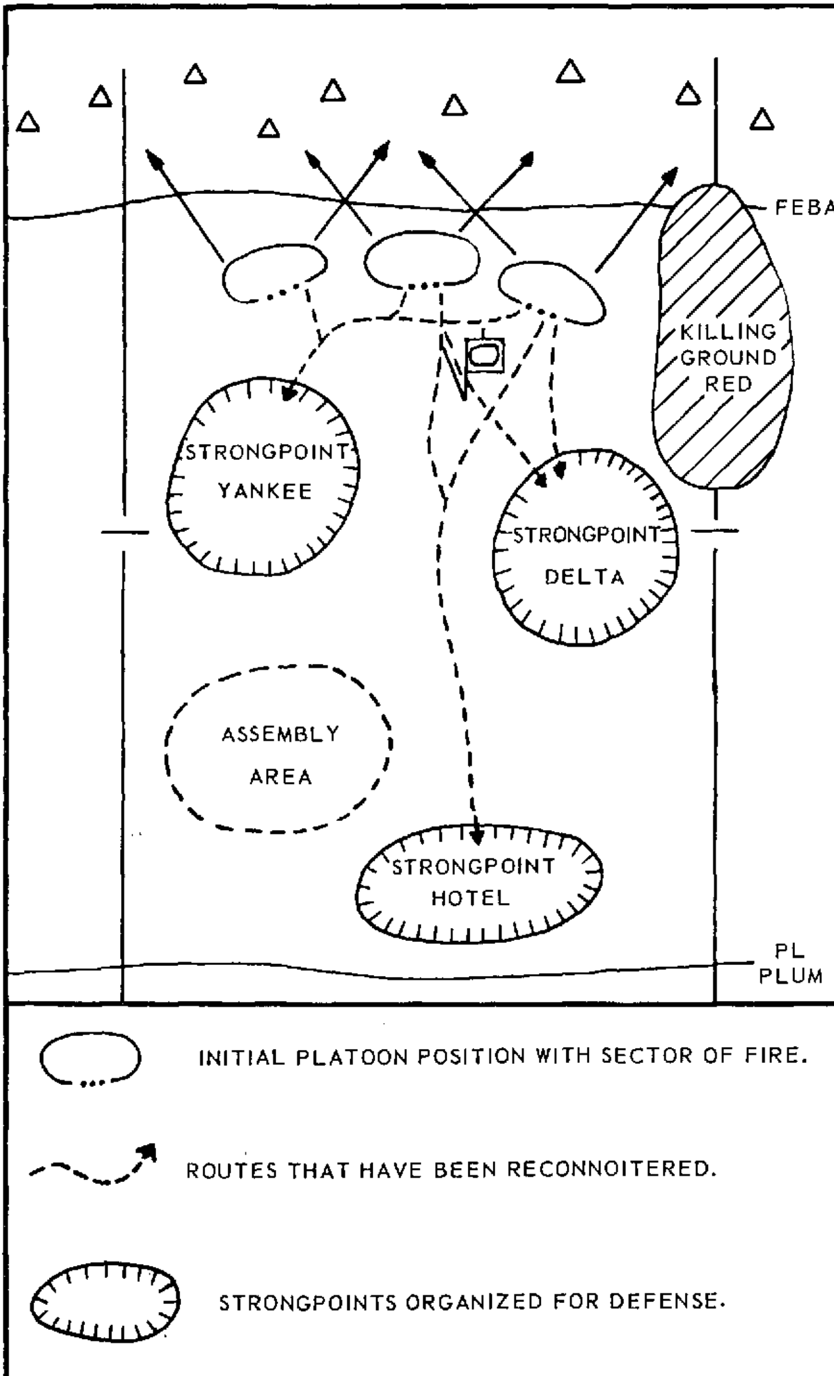


Figure 68. Example of organization of tank company team defensive sector.

e. Assembly Areas. Company-size assembly areas may be designated for initial movement into the forward defensive area and may be used as a base from which company teams organize and prepare assigned strong points and initial defensive positions. Armored infantry may be employed to provide security for these assembly areas.

f. Battalion Mortar Platoon. The 4.2-inch mortar platoon is normally retained under task force control and positioned to provide fire support for the entire force sector.

g. Battalion Scout Platoon. The battalion scout platoon normally is assigned the mission of establishing the observation posts to the front of the forward defensive positions. The conduct of this type security mission is explained in FM 17–35. Local security elements of forward company teams must maintain contact with elements of the scout platoon.

h. Designation of Platoon Positions by Company.

(1) Terrain will normally be the primary factor that influences the method of utilizing platoons of a tank company team within a company sector. A team commander may be able to organize his entire team on one terrain feature, or he may be forced to assign platoons to separate terrain features. Thus, a company team could have three separate platoon positions within the team position. Further, it may have one platoon occupying one terrain feature while the remainder of the team occupies another terrain feature. In some instances, due to the nature of the terrain and width of sector, platoon positions may be out of immediate supporting range of other elements of the company team. Mutual support between platoon positions, however, is desirable. To be considered as mutually supporting by fire, each platoon must be able to give some assistance by the fire of its weapons to an adjacent platoon which is under attack. This does not mean that it must fire across the entire front of the adjacent platoon.

(2) Based on the scheme of defense, the company team may be required to occupy one or more strongpoints as the action develops. In some instances the company team commander may be ordered to occupy a strong point with his entire force, or a number of smaller strong points may be required (*c*(2) above). These strong points may or may not be mutually supporting, depending on the nature of the terrain.

(3) Whether the platoons' initial positions are along the FEBA or on strong points, the positions will be organized for all-round defense, using the techniques discussed in paragraphs 114 through 118.

i. Control. The primary means of control is radio. However, time permitting, wire is laid to and within company defensive areas by battalion communication platoon or company communication personnel as appropriate. Messengers and visual signals may also be used for control.

j. Counterattack Plans. Depending upon the scheme of defense announced by the combat command, the battalion task force commander makes plans for limited spoiling attacks to the front against likely enemy attack positions, or counterattacks designed to divert the enemy into preselected killing grounds. These plans may require one or all of the company teams to participate in the attack. Depending upon the scheme of maneuver of the striking force, the task force commander may plan for one or more company teams to make a limited-objective attack against the flank and rear of the enemy to force him into a killing ground. These counterattacks are offensive in nature and are conducted as explained in chapter 3.

124. Conduct of the Mobile Defense by an Armor Battalion Task Force as Part of a Fixing Force

See paragraphs 376 and 377, FM 17-1.

125. Armor Battalion Task Force as Striking Force

a. General. An armor battalion task force will frequently be employed as a striking force in mobile defense. As such, it will be prepared to attack and destroy an enemy force forward of, within, or to the rear of the forward defensive area. When the task force is employed as a striking force, its actions are offensive in nature; therefore the preparation for, and conduct of, its operations will be generally similar to those of normal offensive operations.

b. Plans.

(1) When an armor battalion task force is employed as a striking force, the task force commander prepares counterattack plans for the employment of his force. The commander conducting the defense outlines his concept and prepares the overall counterattack plans for the entire defense. Plans for the employment of the striking force cover attack positions and routes thereto, line of departure, scheme of maneuver, objectives, supporting fires, and necessary coordination.

(2) Final approval of the striking force attack plans must be given by the commander conducting the mobile defense. After plans have been approved, key personnel of the battalion task force should be made familiar with the plans and given an opportunity to reconnoiter the attack area. Enemy action will seldom permit the striking force to execute its attack exactly as planned. The armor battalion task force

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commander must be prepared to quickly modify any attack plan so as to insure success regardless of what course of action the enemy follows.

c. Reconnaissance. Formulation of the attack plans should be preceded by a thorough reconnaissance of the attack areas designated by the commander conducting the mobile defense. The attack by the striking force should take place over terrain which favors the attacker. It should strike the enemy from the flanks or rear and pin him against an obstacle.

d. Initial Locations of the Striking Force. An armor battalion task force which is designated as a striking force usually is positioned so that it adds depth to the forward defensive area. The task force commander, as a matter of second priority to the completion of counterattack plans, organizes a position on critical terrain within his assigned area. However, no action is taken which would interfere with the rapid movement of the task force in implementation of any of its counterattack plans. The initial location of the striking force will be determined by the next higher commander. Its location should fully utilize the best routes to any threatened point or killing ground.

e. Decision To Commit the Striking Force. The decision to commit the striking force is based to a large extent on the information furnished by the forward elements. When committed, the striking force attacks swiftly, utilizing previously reconnoitered routes, to hit the enemy with the maximum surprise, firepower, and shock action.

f. Conduct of the Counterattack. When the striking force is committed, the striking force commander assumes command of the area between his line of departure and his objective. He assumes command of all elements, particularly those occupying strong points, that can directly affect or contribute to the success of the attack. Units not attached to the striking force may be directed to support the attack by fire. The striking force is given priority of supporting fires and close air support during its counterattack.

126. The Tank Company as Part of a Striking Force

When the tank company is employed as part of the striking force, it normally plans and conducts its operations as outlined in chapter 3.

127. Armor Battalion as Part of a Larger Striking Force

The armor battalion frequently will be employed as an element of the striking force of a larger command. In such a case, the battalion may be reinforced with armored infantry. Actions of the battalion will be offensive in nature (par. 373, FM 17–1).

Section IV. POSITION DEFENSE

128. Missions of the Armor Battalion in Position Defense

a. The position defense does not fully utilize the characteristics of armor. In this type of defense, the armor battalion must be assigned missions where it can use its mobility and shock action to the greatest possible extent under the existing conditions. These missions will include—

(1) Acting as the reserve for a larger force.

(2) Forming a covering force or general outpost for a larger force.

b. In position defense, the armor battalion is best employed as the reserve. Only on rare occasions will the armor battalion be employed as part of the forces in the battle area. When such instances occur, the battalion should be heavily reinforced with armored infantry. To accomplish this mission, it will be necessary to make temporary groupings of certain elements and weapons of the armor battalion.

c. Additional details of the position defense which are associated with this section are contained in paragraphs 379 through 388, FM 17–1.

129. Security Forces, General

Security echelons for the battle area may include aviation, covering forces, and a general outpost. Combat outposts and local security are established by elements holding the forward edge of the battle area.

130. The Armor Battalion on a Covering Force Mission

A covering force is employed in front of the general outpost whenever practicable. The mission of this covering force is to inflict the maximum delay on the enemy. The covering force should be highly mobile. The armor battalion, as part of a larger unit, may be employed in this role. The covering force normally has attached engineers and may have attached artillery. It fights by delaying action (pars. 145 through 157) and avoids decisive engagement with the enemy unless its mission makes such engagement necessary. For details concerning a covering force mission, see paragraphs 375 and 382, FM 17–1.

131. The Armor Battalion on a General Outpost Mission

The general outpost is normally organized and controlled by the division or higher commander. It is located 6,000 to 12,000 yards forward of the forward edge of the battle area. The mission of the general outpost is to obtain timely information with respect to the location, strength, and activities of the enemy, to disorganize and delay his advance, and to deceive him as to the true location of the battle area.

a. The armor battalion, reinforced with armored infantry and supported by engineers, artillery, and Army aviation, may be employed to form all or part of the general outpost for the division. The location of the general outpost is normally prescribed by the division commander.

b. When given a general outpost mission, the armor battalion commander makes a personal reconnaissance of the position, supplemented by a map and aerial photo study. Based on the mission and reconnaissance, he makes his plans, to include security measures, the disposition and frontages of troops on the position and on advantageous delaying positions in the rear, the organization and coordination of fires, the organization of the ground, means for deception and disorganization of the enemy throughout the action, and movement to successive positions in the rear. Extended frontages are covered by increasing the intervals between units; these intervals are covered by observation and fire.

c. Battalion actions during conduct of a general outpost mission are essentially the same as for a covering force mission (par. 130). Unless the outpost is required to hold for a definite time, it begins its withdrawal to subsequent positions as soon as it is apparent that a superior enemy force is deployed for action and outposts are likely to become decisively engaged. The action upon each successive delaying position is designed to create as great a change as possible in the direction of the enemy attack, and to bring about the deployment of the maximum number of hostile units.

132. The Combat Outpost

The combat outpost is normally located on the first high ground in front of the forward edge of the battle area. It is normally far enough forward to deny the enemy close ground observation of the battle area. The elements of the combat outpost are usually furnished by the forces in the battle area. When an armor battalion task force is given a sector to defend, the battalion scout platoon may be used as its combat outpost. The platoon may be reinforced if necessary. Artillery and other supporting fires usually are furnished to the combat outpost from firing positions within the battle area.

a. The combat outpost, within its capabilities, performs the same missions as the general outpost.

b. The combat outpost maintains contact with security forces to the front and flanks, and with the forces in the battle area. Routes are reconnoitered and coordination effected for the rearward movement of the combat outpost through the frontlines.

c. The combat outpost maintains contact with, and assists in covering the withdrawal of, the general outpost. It seeks early contact with the enemy in order to bring an increasing volume of fire upon

his forces as they advance. The combat outpost withdraws on order of the commander controlling its actions; normally, it is withdrawn before it becomes involved in close combat with the enemy. The withdrawal is made by previously selected routes which do not interfere with fires from the battle area.

133. Forces in the Battle Area

The forces in the battle area include those elements charged with the immediate defense of the forward edge of the battle area (FEBA). The FEBA is, in effect, a line joining the forward edges of the most advanced defense areas of the battle area. For a discussion of a battalion task force employed as part of the forces in the battle area, see paragraph 383, FM 17-1.

134. Tanks in Support of Armored Infantry in Position Defense

a. Tanks attached to a frontline armored infantry battalion which is part of the forces in the battle area are used to provide antitank defense in depth, to reinforce the battalion fires, and, supported by armored infantry elements, to make counterattacks. The tanks are positioned to cover the more dangerous enemy armor approaches. They must be able to move rapidly into the counterattack or into areas that are threatened. Some of the attached tanks occupy firing positions in the frontline company areas and engage hostile armor as soon as it comes within effective range. The fires of some tanks may be withheld initially to gain surprise. Most of the tanks with the frontline armored infantry battalion are used with the battalion reserve. Firing positions are prepared from which the tanks with the reserve unit can support frontline units by fire and can also block and contain a hostile penetration. When the battalion reserve counterattacks, all tanks not engaged, or that can be disengaged, take part in the counterattack. Initially, part of the tanks may be used with the combat outpost. Tanks so used usually revert to the reserve upon withdrawal of the combat outpost.

b. Tank platoon leaders and company commanders, when given such a mission, contact the appropriate infantry commanders within the assigned sector and reconnoiter for satisfactory positions. These normally are located within the areas occupied by infantry platoons and are sited to permit the greatest possible degree of mutual support, both between individual tanks and between the tanks and infantry (fig. 69). In addition to its primary position, each tank should have—

(1) One or more alternate positions which cover the same terrain as the primary one.

(2) One or more supplementary positions to which the tank can move to meet an attack from the flank or rear.

c. During the day, the tanks normally remain concealed in the vicinity of their primary positions, moving into them when the enemy

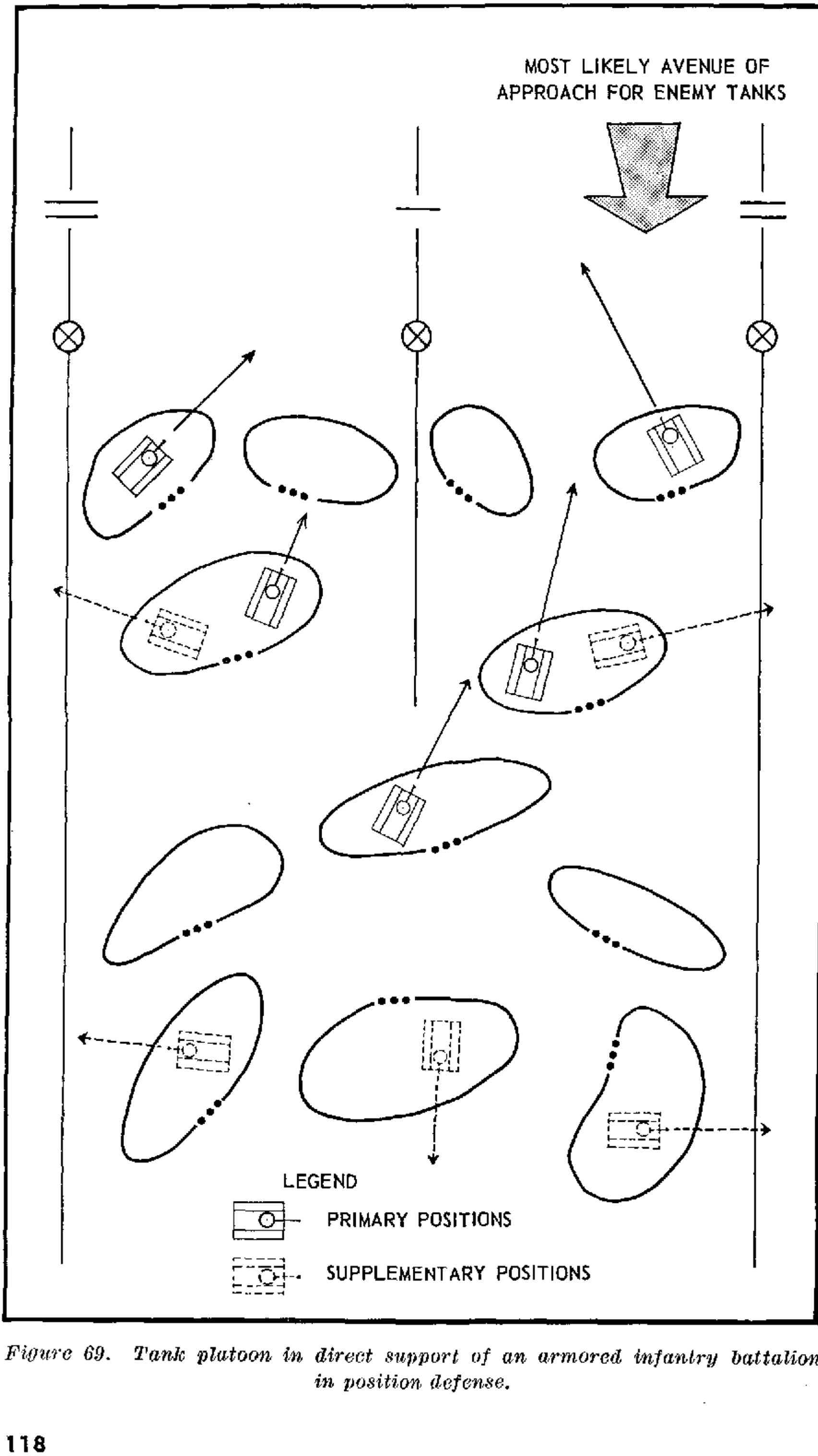


Figure 69. Tank platoon in direct support of an armored infantry battalion in position defense.

attacks. At night, if enemy combat patrols and tank hunters are active, it may be necessary to withdraw the tanks to special positions nearer or within the organized infantry areas.

d. The tank positions, including supplementary and alternate positions, should be located within occupied areas. In some cases it may be necessary to extend the occupied area to include suitable tank positions. One of the advantages of the tank as an antitank weapon in the defense is its ability to move under small-arms and artillery fire.

e. For maximum coordination, flexibility, and control in position defense, tanks are not attached below company level.

135. Tank Platoon in Defensive Combat

a. Whenever possible, tanks avoid disclosing their positions by holding fire until the enemy tanks are within effective range of the main tank gun. Although their primary target is hostile tanks, they may employ HE and machine-gun fire against groups of enemy infantry, supporting weapons, or other targets of opportunity.

b. The tank platoon leader controls the fire and movement of his platoon.

c. The platoon leader shifts the individual tanks from position to position whenever necessary to obtain better fields of fire or to avoid heavy antitank fire (fig. 70). Once the direction of the hostile main effort is determined, the commander responsible for the defense of the position may direct the platoon leader to move most of his tanks to oppose it.

d. The tank platoon may be employed, in conjunction with the armored infantry battalion reserve, for small-scale counterattacks. Such an action is especially appropriate in situations where the enemy force consists almost entirely of infantry or when the accompanying enemy tanks have been destroyed.

136. The Armor Battalion as the Reserve in Position Defense

When an armor battalion is designated as the reserve for a larger command, it may be employed to—

a. Plan and execute counterattacks.

b. Conduct spoiling attacks in front of the FEBA to harass the enemy and disorganize his forces as he prepares to attack.

c. Defend against airborne and guerrilla attack.

d. Prepare positions to extend the depth of the battle area and to protect the flanks and rear of the larger command.

137. Armor Battalion Plans for Counterattack in Position Defense

a. Since the armor battalion is best suited for offensive action, it normally is used as the counterattacking force for a larger command.

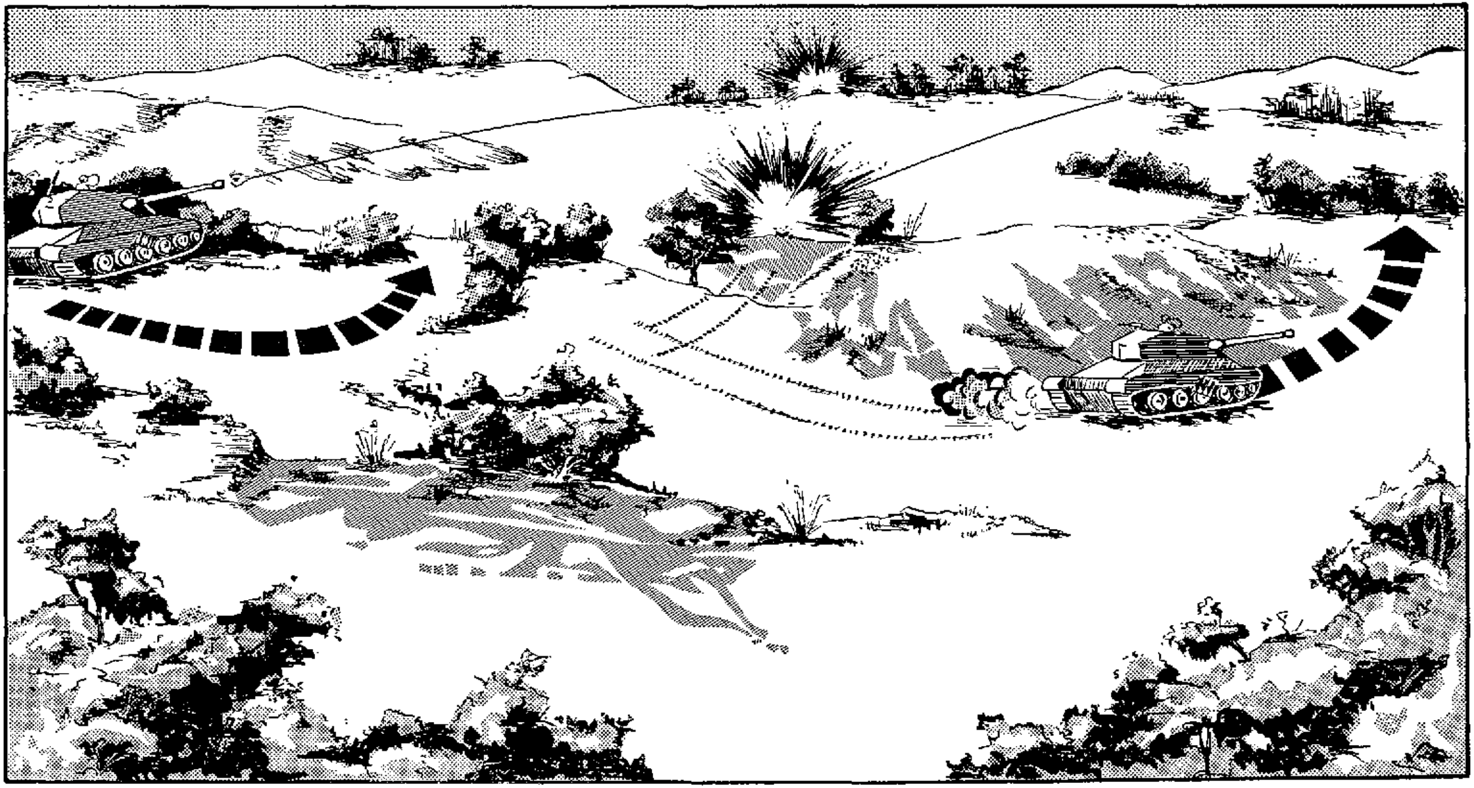


Figure 70. The platoon leader shifts individual tanks from position to position to avoid heavy antitank fire.

Counterattacks are made to restore the original position, to trap and destroy enemy forces which have penetrated the battle area, or to strike the enemy as he prepares to launch an attack against the battle area.

b. The reserve battalion commander prepares counterattack plans to cover every enemy capability. Plans to counter enemy attacks on or near the flanks of the higher command must be coordinated with adjacent units, to ensure mutual support and to avoid firing into friendly positions. All units participating in the counterattack should be placed under one commander.

c. Each counterattack plan is a complete plan of attack to capture a specific objective. Each plan will cover reserve position, attack position (if required), routes to the attack position and line of departure, objective, employment of attached and supporting units, fire support, the formation and direction of the counterattack, action upon reaching the objective, communication, rehearsals or briefing of unit commanders, and thorough coordination, especially with commanders through whose areas the counterattack passes. Subordinate commanders must thoroughly understand all counterattack plans. They should reconnoiter the ground and should familiarize their troops with the details of the plan.

138. Tank Company Preparation for Counterattack as Reserve for an Armored Infantry Unit in Position Defense

a. The tank company may form all or part of a reserve for an armored infantry unit. When so assigned, the tank company commander obtains the plan of defense from the infantry commander, makes a thorough reconnaissance of the sector, and, based upon the commander's scheme of defense, submits his recommendations for the employment of his unit. These recommendations include—

(1) Selection of probable objectives.

(2) Selection of one or more reserve positions.

(3) Selection of attack positions from which to launch counterattacks, lines of departure, and the routes thereto (may not be used for all counterattack missions).

(4) Methods of communication and liaison to be employed.

(5) Employment of infantry weapons and other supporting fires in support of counterattacks.

b. (1) A reserve position must offer the maximum degree of cover and concealment possible, since it is often within range of enemy light artillery. If concealment is lacking, camouflage and dispersion are substituted. The reserve position is organized carefully, its exits being developed to allow rapid displacement in any direction. Light, sound, and traffic discipline are enforced rigidly.

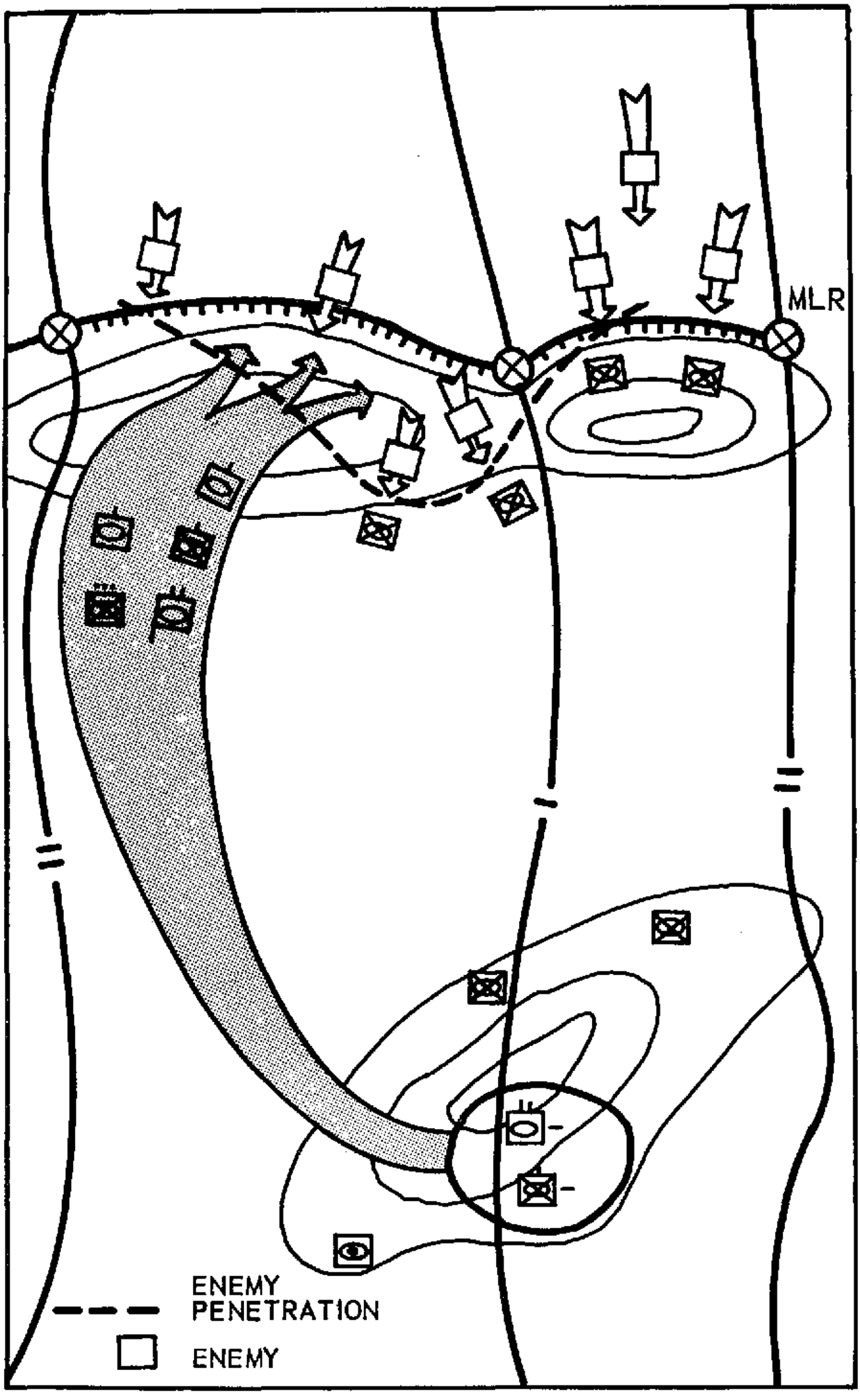


Figure 71. Execution of the counterattack in the position defense to regain a lost portion of the battle area.

(2) Control measures are similar to those used in offensive combat. Routes between the reserve and counterattack positions must be improved wherever necessary to permit swift movement. The selection of covered and concealed routes may do much to ensure surprise and reduce casualties. In certain situations, for example, when the hostile attacking force consists mainly of infantry—open routes may be better because they permit the freer and more accurate employment of supporting weapons to assist the counterattacking tanks.

(3) The development of alternate counterattack plans to meet all foreseeable emergencies requires a corresponding selection of alternate routes and installations. All personnel must be familiar enough with all of these to be able to recognize them under the most unfavorable weather or tactical conditions.

(4) Since the tank company normally counterattacks on very short notice, as a part of a team of combined arms, constant close liaison with other units of that team is essential. All personnel are thoroughly informed as to the different counterattack plans and are prepared to move without delay.

c. When his company is a part of a large reserve, the tank company commander submits such recommendations for the employment of his unit as the reserve commander may request. The company commander and his platoon leaders familiarize themselves with all plans and with all routes and installations which may be used by the company during counterattacks.

139. Conduct of a Counterattack in the Position Defense

a. The actual conduct of a counterattack by an armor battalion task force or tank company team is the same as for normal offensive operations as discussed in chapter 3 (fig. 71).

b. After the counterattack has destroyed the penetration, the task force may occupy the recaptured area and organize the position for a defense of the FEBA. If the counterattack is stopped and fails to capture its objective, the task force quickly reorganizes, holds what ground it has gained, and awaits further orders or action from higher commanders.

Section V. PERIMETER DEFENSE

140. General

When it is necessary for an armor battalion task force to provide its own protection, primarily when it is acting independently or for other reasons is separated from friendly forces, it normally establishes a perimeter defense (pars. 389 through 392, FM 17-1).

141. Conduct of Perimeter Defense by an Armor Battalion Task Force Operating Independently

a. When it is necessary for an armor battalion task force to establish a perimeter defense, the task force commander carefully analyzes the factors of METT (mission, enemy, terrain and weather, and troops available). He then assigns sectors to his company teams. He must maintain a strong striking force; this striking force must be so located that it can quickly move to any part of the defensive system. He should include in his plans maximum utilization of available aerial reconnaissance to provide warning.

b. The company teams that are assigned defensive sectors organize dominating and critical terrain. They establish their strong points far enough from the center of the defensive area to give the striking force adequate room for maneuver. The task force commander should be prepared to give up some ground in order to seek more favorable terrain in the event the enemy attacks in strength.

c. Company teams assigned defensive sectors normally must defend extended frontages. As a result, they must carefully organize their strong points to insure complete domination of likely avenues of approach into their sectors. Strong points are organized as in mobile defense. Each company team provides its own security force, and positions it along the trace of a line established around the entire task force perimeter by the task force commander. This security force for a company team normally consists of a platoon of tanks and a platoon of armored infantry. The battalion scout platoon may be integrated into this security echelon at a point designated by the task force commander.

d. The most difficult problem for the task force commander is to decide how much of his force to employ in the establishment of the strong points and how much to keep out as his striking force. No yardstick can be provided. Each such decision will depend on the enemy situation, the terrain and weather, the strength and condition of the companies, and the mission of the task force. Normally, the striking force will be tank heavy, and the bulk of the armored infantry will be placed in the strong points.

e. The headquarters elements of the battalion will occupy the least vulnerable position within the defensive position, but must be so located that they can support all combat elements of the task force.

f. A fire-support plan will be made. The armor battalion task force on an independent mission may have artillery attached. If possible, the artillery should be so located as to be able to support the strong points. All available supporting weapons are integrated into the fire-support plan.

g. The strong points make every effort to stop an enemy attack. If the strong points are penetrated or are on the verge of being

penetrated, the striking force may be committed to attack the enemy force. If the attack is successful and the enemy threat is wiped out, the strong points may be maintained as originally established. If the attack is not successful, it may be necessary for the task force commander to order the strong points under attack to withdraw to previously prepared positions in order to regain freedom of maneuver for both the strong points and the striking force.

Section VI. ADDITIONAL CONSIDERATIONS IN DEFENSE

142. General

See chapter 9, FM 17-1, for a discussion of considerations peculiar to—

a. Defense of a river line (pars. 393–396).

b. Defense of a wooden area (par. 397).

c. Defense of a defile (pars. 398–400).

d. Defense of a built-up area (pars. 401-405).

e. Defense at night and during periods of poor visibility (pars. 406 and 407).

f. Defense against airborne attack (par. 408).

g. Defense against guerrilla action and infiltration (par. 409).

h. Defense against air attack (pars. 410 and 411).

E.1 ADDED See C-1 P-7

CHAPTER 5

RETROGRADE MOVEMENTS

Section I. GENERAL

143. General

A retrograde movement may be classified as a delaying action, a withdrawal from action, or a retirement. See paragraphs 412 through 414, FM 17–1, for discussion of the types and purposes of retrograde movements.

144. Armored Division Armor Battalion, 90-mm, in Retrograde Movements

When adequately reinforced, the armor battalion may conduct a delaying action or withdrawal from action either alone or as part of a larger force. The armor battalion normally participates in a retirement as part of a larger force. The battalion actions in a retirement are essentially the same as for armor marches, since a retirement does not begin until the bulk of the command is formed into march columns. When operating as a part of a larger force, the armor battalion makes retrograde movements only in conjunction with an overall plan or on specific orders from higher authority.

Section II. DELAYING ACTION

145. General

a. A delaying action is a retrograde movement by which a force seeks to delay the advance of an enemy force. A unit engaged in a delaying action inflicts maximum punishment on the enemy without becoming decisively engaged in combat. The armor battalion, because of its mobility and armor-protected firepower, is well suited for a delaying action mission. When such a mission is given, the battalion usually delays on successive positions. Delay on successive positions consists of organized resistance on an initial position and the continuation of this resistance through successive delaying positions (fig. 72). See paragraphs 416 through 418, FM 17–1, for a discussion of the fundamentals of delaying action.

b. Delaying positions normally are not organized in depth. They are strong in firepower, with the bulk of the force concentrated at

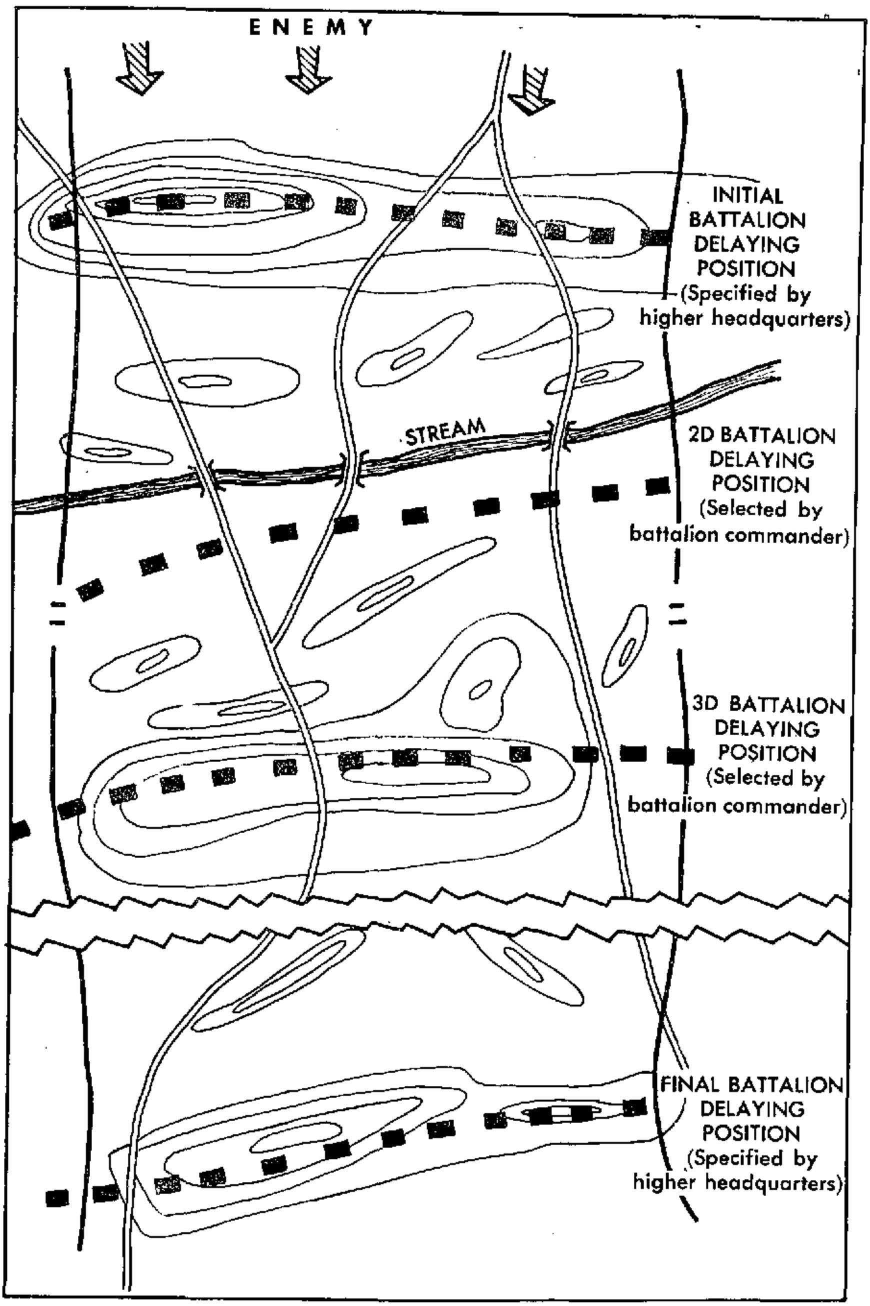


Figure 72. Successive delaying positions.

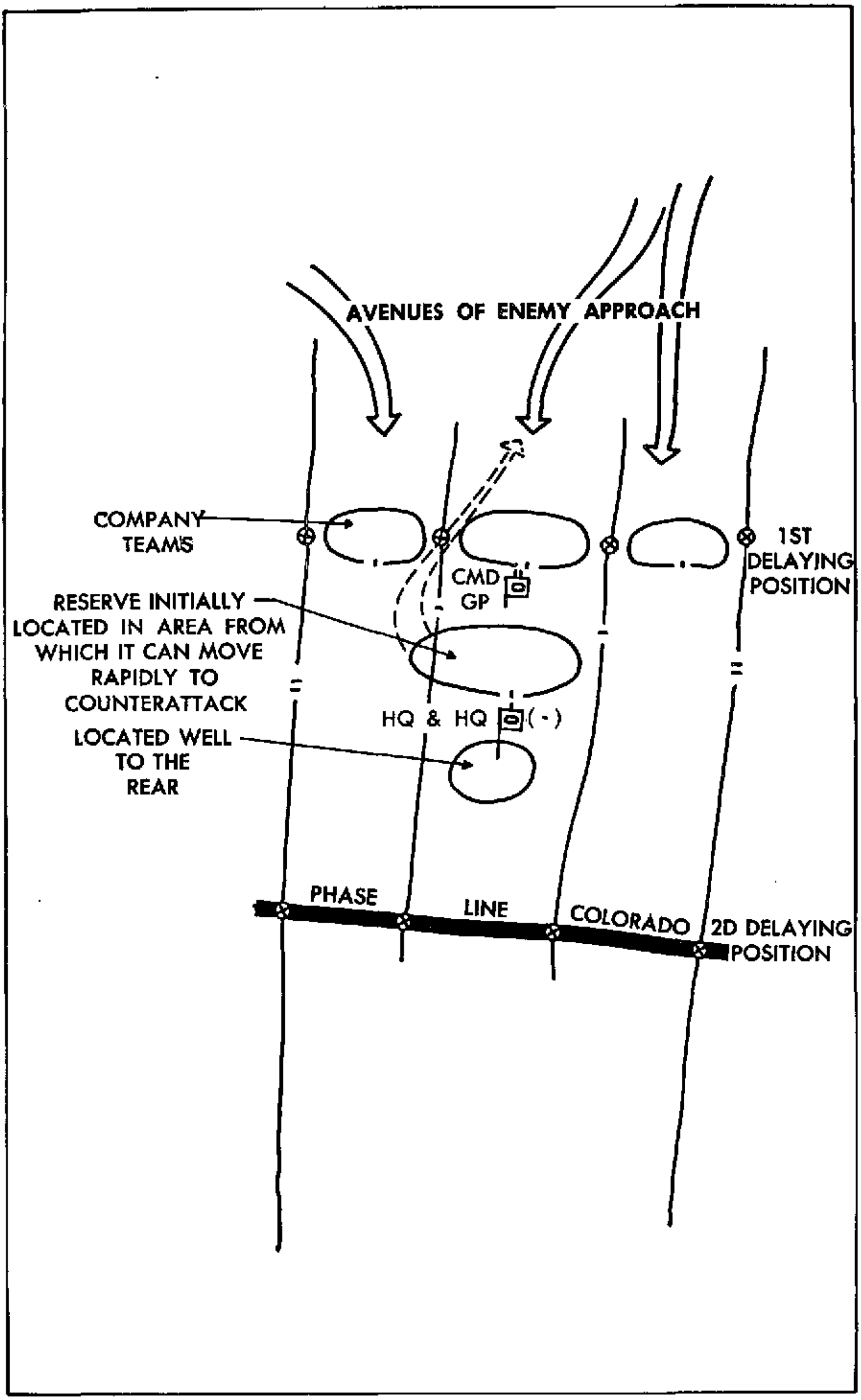


Figure 73. Tank battalion task force dispositions on a delaying position (schematic).

likely avenues of enemy approach. An armor battalion conducting a delaying action is divided into two major echelons, the delaying force and a reserve. Companies normally do not designate reserves. The execution of a delaying action is decentralized to company level. The battalion commander controls the action by assignment of company zones and designation of battalion alternate or successive delaying positions.

146. Reconnaissance and Selection of Delaying Positions

See paragraph 422, FM 17–1.

147. Disposition of Forces for Delaying Action

a. The battalion commander assigns company zones corresponding to the most likely avenues of approach available to the enemy through the battalion zone (fig. 73). Boundaries are designated between companies to indicate zones of responsibility. Each avenue of approach and the terrain which dominates the avenue are assigned to one company; avenues of approach are not split between companies. Each company zone should include at least one good route of withdrawal.

b. The reserve is initially located in an area from which it can move rapidly to any threatened point or can rapidly execute a counterattack.

c. The battalion command post and battalion combat trains are located well to the rear, to avoid the necessity of frequent displacement and to avoid interference with the actions of the combat elements of the battalion. The command group, however, should remain well forward with the engaged elements and should be among the last to withdraw.

d. In turn, the company commander disposes his platoons in such a manner as to cover likely avenues of enemy approach into his zone (fig. 74). In a wide company zone with several good avenues of approach, all platoons may be used on line. Whenever possible, however, at least one tank platoon should be positioned to provide depth. Attached armored infantry elements are placed where they can best protect and support the tanks and cover portions of the zone not covered by other fires.

148. Task Organization of Armor Battalion Task Force Conducting Delaying Action

a. An armor battalion conducting a delaying action normally has armored infantry attached. The battalion task force so formed may be either tank heavy or balanced. A typical armor battalion task force may consist of three organic tank companies and a company of armored infantry, or 2 companies of tanks and 2 companies of armored infantry. In turn, the organization of company teams by the task force commander is based on a consideration of the factors of METT.

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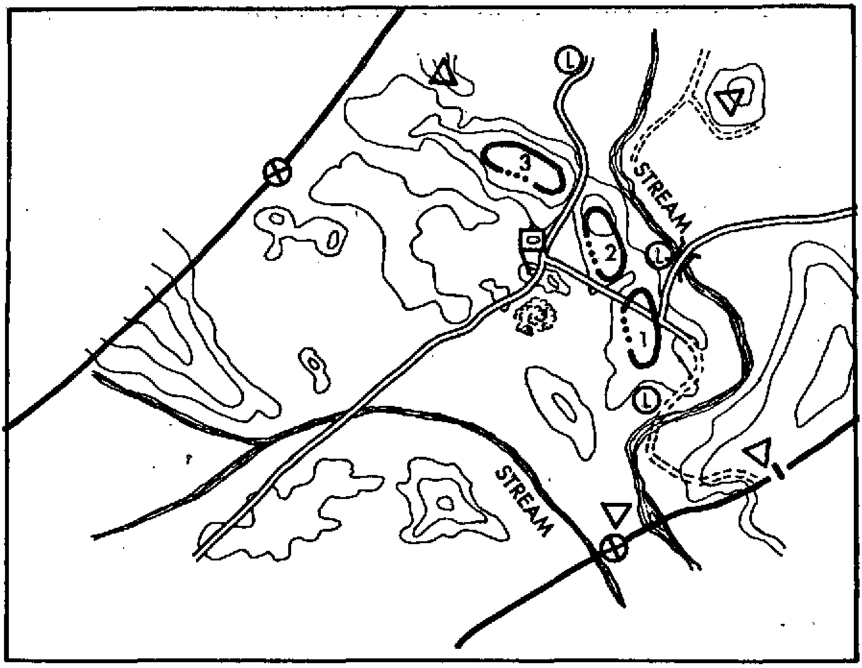


Figure 74. Company delaying position.

A company team may consist of a company of tanks less 1 or 2 tank platoons with 1 or 2 armored rifle platoons attached. The task force reserve is normally tank heavy but must have sufficient armored infantry to enable it to operate effectively anywhere in the task force zone.

b. The battalion scout platoon may be retained under task force control for the execution of such missions as flank guard or reconnaissance within the position or to the rear. Sections of the platoon may be attached to company teams in the delaying force, to conduct observation or light patrol missions or to assist in the reconnaissance of the next company delaying position to the rear.

c. The mortar platoon normally is retained under task force control. In accomplishment of its mission, the platoon must be so positioned as to best provide support for company teams of the delaying force.

149. Security in Delaying Action

a. General. During a delaying action, the enemy will make every effort to envelop and destroy the delaying force. The battalion task force commander must be particularly careful that the enemy does not turn his flank or surprise him in position. Continuous reconnaissance provides one of the best sources of security. Ground reconnaissance may be extended by Army aircraft. Close coordination between adjacent units is essential to avoid presenting an exposed flank to the

enemy. Limiting points are designated along boundaries, and liaison officers are used to keep the task force commander informed of the situation on his flanks.

b. Security to the Front. If elements of the delaying force are not in contact with the enemy, action must be taken to prevent surprise of the delaying force and to provide early warning of enemy approach. The battalion scout platoon may be used as a security force forward of the company delaying positions. In addition, observation posts are established to the front of delaying positions during daylight. These are replaced by listening posts at night. Routes from the position out to the observation posts are very carefully chosen in order to avoid detection of movement by the enemy.

c. Security to the Flanks. A tank unit on the delaying position must establish its own flank security by all-round observation, patrols, and contact with adjacent units. Careful reconnaissance enables the delaying force to locate avenues of approach which the enemy is likely to use in an effort to envelop the delaying force. Leading elements of any enemy force attempting to advance along such avenues can be blocked or ambushed. When not otherwise used, the battalion scout platoon should be assigned the mission of protecting an exposed battalion flank.

d. See paragraph 423, FM 17–1, for further discussion of security in delaying action.

150. Control Measures in Delaying Action

See paragraph 424, FM 17–1.

151. Combat Support of Delaying Action

See paragraph 421, FM 17–1.

152. Employment of Fires in Delaying Action

See paragraph 425, FM 17–1.

153. Use of Obstacles in Delaying Action

See paragraph 426, FM 17–1.

154. Occupation of a Delaying Position

a. General. The occupation of a delaying position by a tank unit is generally the same as for any defensive position. The commander places greater emphasis on engaging the enemy at maximum effective range and on disposing his forces so that he can efficiently execute the planned withdrawal to the next delaying position (par. 427, FM 17–1).

b. Basic factors to be considered for the occupation of a delaying position by a tank unit includes—

(1) Primary positions.

(2) Alternate positions.

(3) Supplementary positions.

(4) Observation.

(5) Fields of fire.

(6) Cover and concealment (includes camouflage).

(7) Hull and turret defilade.

(8) Preparation of range cards.

(9) Security (includes observation posts, patrols, use of infantry to protect tanks).

(10) Coordination with other elements.

c. Preparation of the position is continued as long as time permits. Alternate and supplementary tank positions are selected. Tank commanders familiarize themselves with the routes to these positions. Armored personnel carriers are placed in hull defilade and concealed; their caliber .50 machine guns are integrated into the fire plan. Rocket launchers are sited in zones assigned to the armored infantry where enemy armor is most likely to appear.

d. Maximum use is made of crew-served weapons. The commander usually tries to position his tanks in hull defilade near the topographical crests of terrain features, where maximum height for long-range fires is available and access to covered routes of withdrawal is more immediate (fig. 75). In some situations, a tank should be positioned in a concealed, covered location and then move up to its actual firing position in order to fire (fig. 76). Subsequently, during an action, the tank should be shifted when necessary to obtain better fields of fire or to avoid heavy antitank fire.

e. Vehicles which are not needed on the delaying position should be placed under cover or concealment to the rear of the position. Command post, supply, maintenance, and medical vehicles should be located well to the rear to insure continuous operation and support during the critical period of the withdrawal from a delaying position. The commander must remain well forward in order to coordinate and control the actions of his unit.

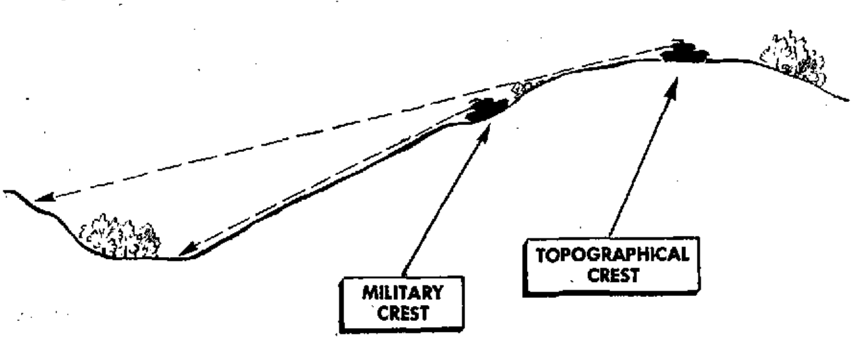


Figure 75. Tank firing position near topographical crest.

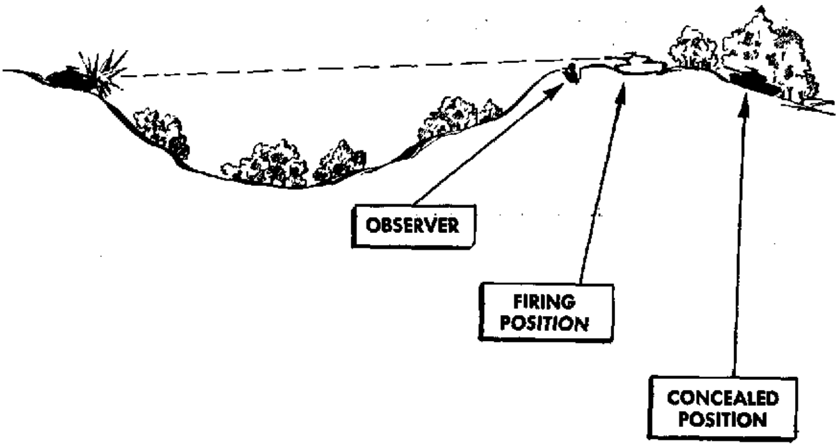


Figure 76. Concealed tank position.

155. Conduct of the Delaying Action

a. As the enemy approaches the first delaying position, he is brought under long-range artillery and mortar fire. As he closes with the position, he is engaged by all weapons of the delaying force at maximum effective range in order to force him to deploy, reconnoiter, and execute other time-consuming maneuvers.

b. The company teams normally are withdrawn from the delaying position before becoming decisively engaged with the enemy. The teams do not withdraw unless authorized to do so by the battalion task force commander. The successful employment of the delaying force is largely dependent upon proper timing. Proper timing is the result of effective reconnaissance, adequate security, and timely combat information. The next senior commander must be kept informed at all times of the unit situation, to insure the issuance of orders for the withdrawal of the unit before it becomes too heavily engaged.

c. The battalion task force continues to delay the enemy in the area between battalion delaying positions. Although the company teams will have considerable freedom of action in their assigned zones, the task force commander will coordinate their movements to the extent that one team will not be endangered by the too-rapid withdrawal of an adjacent team. Just prior to the withdrawal, some elements of the delaying force, preferably forces which are least engaged, are moved rearward to the next or intermediate delaying position. The remainder of the delaying force, when ordered to withdraw, executes the withdrawal by fire and movement, supported by the fires of the element which had previously withdrawn, artillery, mortars, and tactical air. Delay is continuous, between as well as on the delaying position.

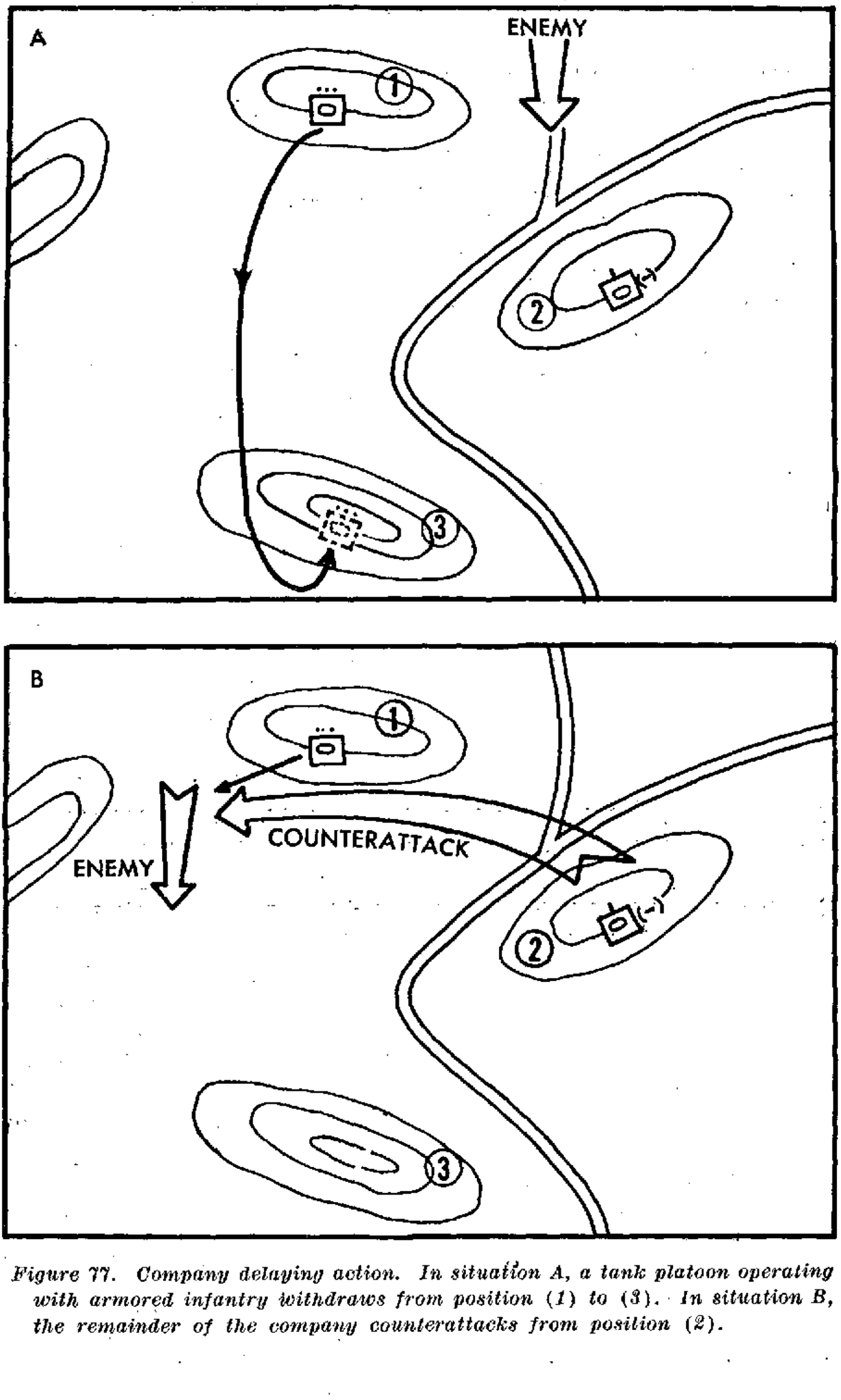


Figure 77. Company delaying action. In situation A, a tank platoon operating with armored infantry withdraws from position (1) to (3). In situation B, the remainder of the company counterattacks from position (2).

d. The battalion task force reserve may be used to counterattack in order to extricate a heavily engaged unit, to destroy an enemy penetration, to block an enemy threat to the front or flanks, to cover the withdrawal of elements of the delaying force, or to reinforce one or more elements of the delaying force. Command, control, and timing of counterattacks are most critical. The commander must exercise utmost vigilance to ensure that his unit does not become so involved with the enemy that it cannot break off the action. These counterattacks are for limited objectives and are supported by artillery, mortars, and elements of the delaying force. Similarly, company teams may execute counterattacks for the same reasons but on a more limited scale. Figure 77 illustrates this technique. See paragraph 428, FM 17–1, for a discussion of technique of employment of reserves.

156. Company Team Preparation for Withdrawal to Next Delaying Position

a. After occupying the initial delaying position, the tank company team commander makes a reconnaissance of, and assigns platoon positions on, the next delaying position to the rear. Rearward positions which may be occupied during the course of a delaying action, and the route or routes thereto, should be thoroughly reconnoitered in advance. A complete plan for the withdrawal to, and organization and defense of, such a position should be the result of this reconnaissance. When prior reconnaissance is impossible, the delaying force reconnoiters to the rear while it engages the enemy. Reconnaissance to the rear is frequently conducted by a representative of the company team commander, usually his executive officer. Any elements of the battalion scout platoon which may be attached can be used for this reconnaissance. In addition, attached scout platoon elements may be employed to guide platoons into selected delaying positions. In fast-moving situations, it may not be possible for the platoon leader or his representative to participate in this reconnaissance to the rear.

b. In planning and executing withdrawals to successive delaying positions, the following desirable characteristics of routes of withdrawal must be considered.

(1) Provide cover from enemy fire.

(2) Provide concealment from enemy observation.

(3) Lead directly to the next delaying position.

(4) Have good trafficability.

c. Each tank commander is usually responsible for the selection of the route he will use to move his tank. His reconnaissance is brief, and is usually conducted on foot when his tank is not fighting. He must become familiar with the withdrawal plans of his platoon.

d. In addition to planning the occupation of the next delaying position, it is desirable to have some portion of the delaying force occupy it in advance, to prepare positions and to cover the arrival of the remainder of the force. In many situations, troops cannot be spared for such a purpose. It may be possible to accomplish this and not detract from the actual delaying strength of the unit. For example, if the terrain is relatively open, there may be little requirement for armored infantry. In such case, a portion of the armored infantry might well be sent back to start the organization of the next delaying position.

157. Company Team Withdrawal to the Next Delaying Position

a. General. The company team may withdraw to the next delaying position as a result of enemy pressure or to conform to the movement of adjacent units, but it withdraws only on order of the battalion task force commander.

b. Technique of Disengagement. Prior to the withdrawal of the initial element, nonessential company vehicles and personnel are moved to the next delaying position. Platoons not heavily engaged are the first to withdraw. On order from the team commander, platoons remaining on the position utilize the same technique in withdrawing. The least heavily engaged tank section withdraws, the other section increasing its fire to assist in the disengagement. The company team commander may request artillery fires through the accompanying forward observer. On occasion, the task force commander may commit his reserve, if the company team is having difficulty disengaging. When the team commander has disengaged his forces, he should take steps to maintain observation over the advancing enemy. Any elements of the battalion scout platoon which may be attached can be used for this purpose. Otherwise, a tank platoon, or attached armored infantry, must be assigned the mission.

c. Procedure. The procedure that a tank company team employs in moving back to a successive delaying position will vary, depending on the enemy situation and the terrain and weather (fig. 78). The team may—

(1) Withdraw to the next delaying position, maintaining a constant pressure against the advancing enemy. In such a withdrawal, the tank platoons are usually directed to withdraw by leapfrogging from one terrain feature to another (fig. 79). The team commander determines which platoon is the least heavily engaged and instructs the platoon leader to move to a terrain feature to the rear to cover the withdrawals of the remaining platoons. As soon as the first platoon dispatched to the rear is in position, the team commander orders one or more of the remaining platoons to move back.

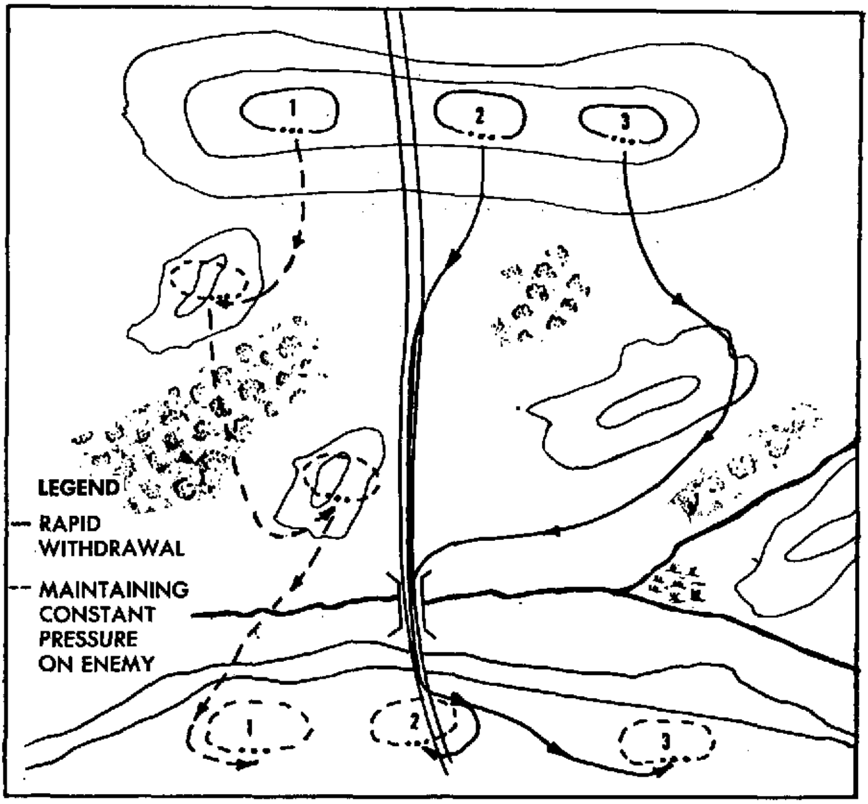


Figure 78. Methods employed in withdrawal to next delaying position.

(2) Execute a rapid withdrawal and move directly back to the next delaying position. Once a successful disengagement from enemy forces has been effected, platoons move to the rear, in column along parallel routes, to their assigned areas in the next delaying position. Such a procedure may be used at night, when no favorable terrain from which to delay the enemy exists between delaying positions, or when it is necessary to conform to movements of adjacent troops. One tank platoon or elements of the battalion scout platoon may be assigned the mission of keeping the enemy under observation as the remainder of the team occupies its new position.

(3) Employ a combination of the procedures discussed in (1) and (2) above. This combination may be especially appropriate when it is necessary for the company team to conform to the movements of adjacent forces.

d. Order for Withdrawal. The company team commander will give the order for the actual withdrawal. One of the basic principles of retrograde operations is that no element should ever move to the rear without specific authority to do so.

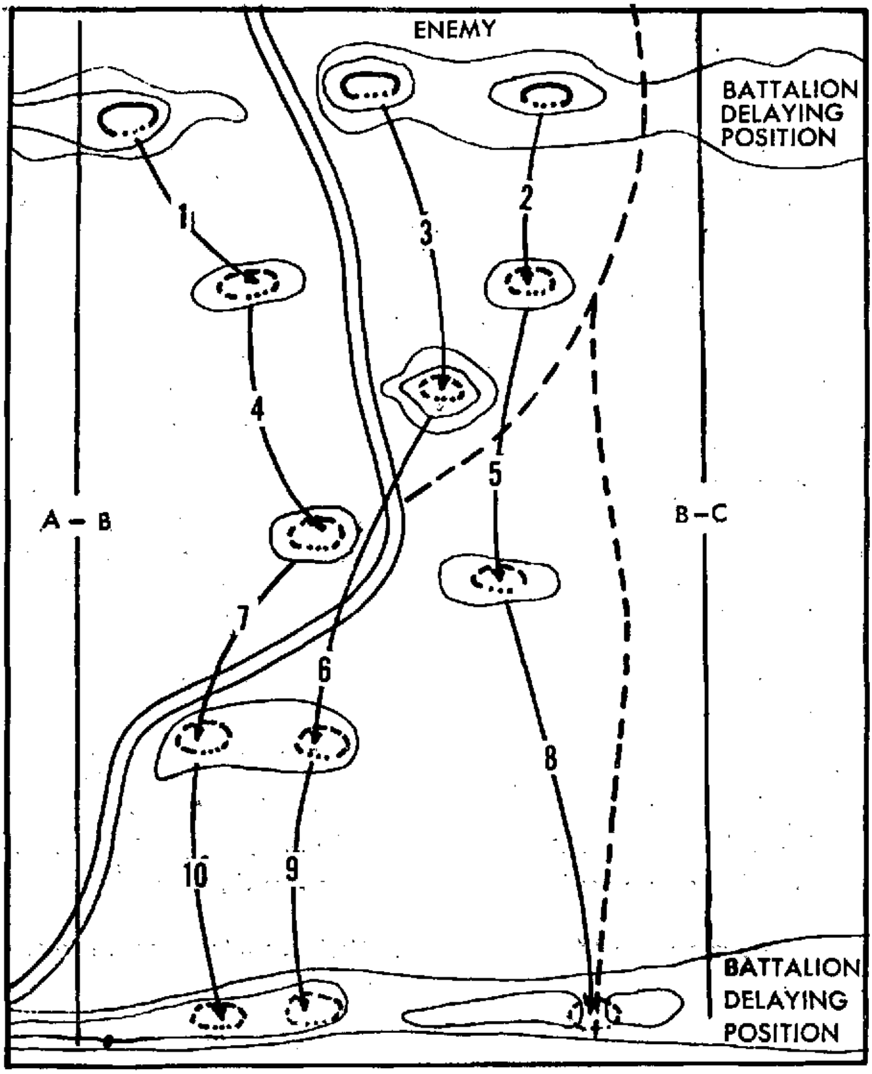


Figure 79. Tank company team in a delaying action; platoons leapfrogging to the rear, where favorable terrain to delay the enemy exists between the battalion delaying positions (numbers indicate order of withdrawal).

e. Timing of Withdrawal. Units must withdraw before they become decisively engaged with the enemy.

f. Security During the Withdrawal. It is necessary to have rear and flank protection when moving to the next position. In small units, this security will be achieved by having the various elements of the unit cover or protect each other as they move to the next delaying position. If a rapid withdrawal is initiated, steps must be taken to keep the advancing enemy under constant observation. Elements of the battalion scout platoon which may be attached to the

company team, and any supporting Army aircraft, may be used for this purpose. In any event, a rapid and well-executed withdrawal is usually the best insurance that can be taken against the enemy interfering with the movement. In order to make such a withdrawal, it is extremely important that each soldier understand exactly what he is to do and why.

Section III. WITHDRAWAL FROM ACTION

158. General

a. An armor battalion task force may be required to withdraw from action in order to position itself to be able to initiate some other action. A portion of the task force is designated to function as a security force to cover the withdrawal. The task force commander may designate one or more company teams as a security force, or he may use elements of each company team for this purpose. A withdrawal may be conducted during daylight or at night. Generally, a withdrawal is accomplished in two phases: a *disengagement* from action, followed by the *formation of march columns* for continued movement to the rear.

b. The battalion task force will usually be assigned a zone of withdrawal. The boundaries of the zone will extend back to the point where the task force forms its march column. The task force commander assigns routes to his company teams. Multiple routes should be used, if available, and initial points (IP's) should be designated where units using the routes join the column.

c. If the battalion task force is withdrawing under pressure of an enemy advance, the reserve may be ordered to counterattack to relieve pressure on the withdrawing units. If the task force is not being subjected to enemy pressure, the reserve may withdraw first, followed by other elements of the task force.

d. Subject coverage in this section is primarily at company level and below. For discussion of actions at battalion level and for general information covering withdrawals from action, see paragraphs 431 through 435, FM 17-1.

159. Daylight Withdrawal From Action

a. In a daylight withdrawal, the tank platoon or company may act as part of the battalion task force reserve, as the security force, or as one of the elements in contact with the enemy.

b. As a part of the task force reserve, the platoon or company may—

(1) Be employed as a counterattacking force to permit the withdrawal of a unit that is heavily engaged. Such a counterattack is a limited-objective attack and is conducted by the entire task force reserve.

(2) Be employed as the security force to occupy a position from which it can cover by fire the withdrawal of units in contact with the enemy.

(3) Be the first element to move to the rear when it is not required to assist engaged units in disengaging from the enemy.

c. If the battalion tank force commander uses elements of each frontline company team as a battalion security force, the tank company team commander normally employs about one-third of his unit as his portion of the security force. This security force covers the withdrawal of the company team main body and withdraws on order of the team commander in accordance with instructions issued by the task force commander. The security force may be formed by—

(1) Elements of tank and armored rifle platoons remaining on the platoon position. These elements are placed under a single commander and form a composite security force. By this technique, the security force is quickly formed with a minimum of movement. For example, a tank company team with two armored rifle platoons attached might execute its withdrawal as indicated in figures 80 and 81. In figure 80, the team has two tank platoons and two armored rifle platoons on line, the third tank platoon having previously been ordered to start its move to the rear. Figure 81 shows the bulk of the team enroute; elements of the platoon have been left in position to form a composite security force.

(2) The designation of a platoon-size, combined-arms team to act as the security force.

d. A tank company team which is given a security force mission for the entire battalion task force organizes for combat and conducts its actions in essentially the same manner as for the security force of the mobile defense (par. 122).

e. For a tank company team which is in contact with the enemy and which is not required to use some of its elements as part of the battalion security force, disengagement actions are similar to actions of units conducting a withdrawal from an initial or subsequent delaying position (par. 157). Units not engaged with the enemy are the first to withdraw. When contact with the enemy is broken, they withdraw rapidly. However, when the enemy strength is not concentrated in any particular platoon area, platoons may be ordered to withdraw simultaneously. The commander assigns platoon routes of withdrawal and designates an initial point where the platoons will form into a company team march column (fig. 82).

160. Night Withdrawal From Action

See paragraph 433, FM 17–1.

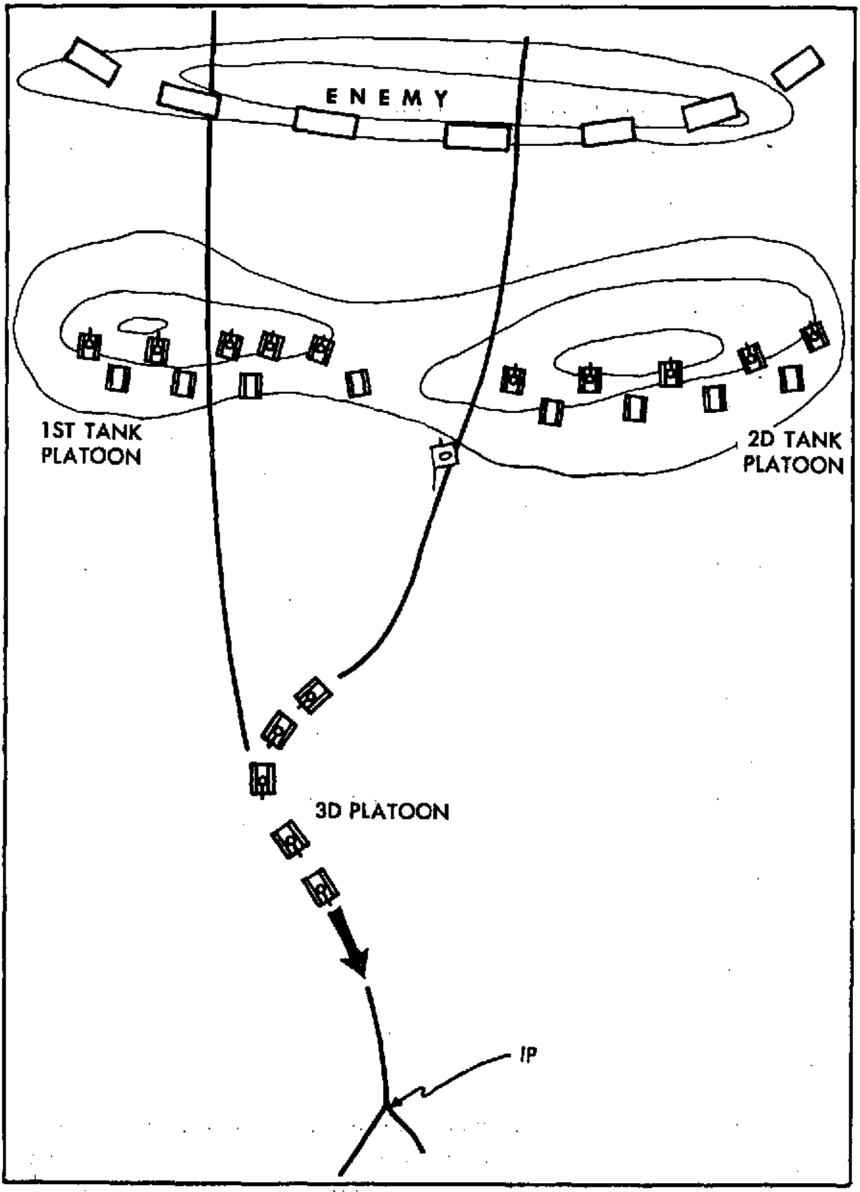


Figure 80. Initiation of withdrawal when a frontline company is forming part of the battalion security force.

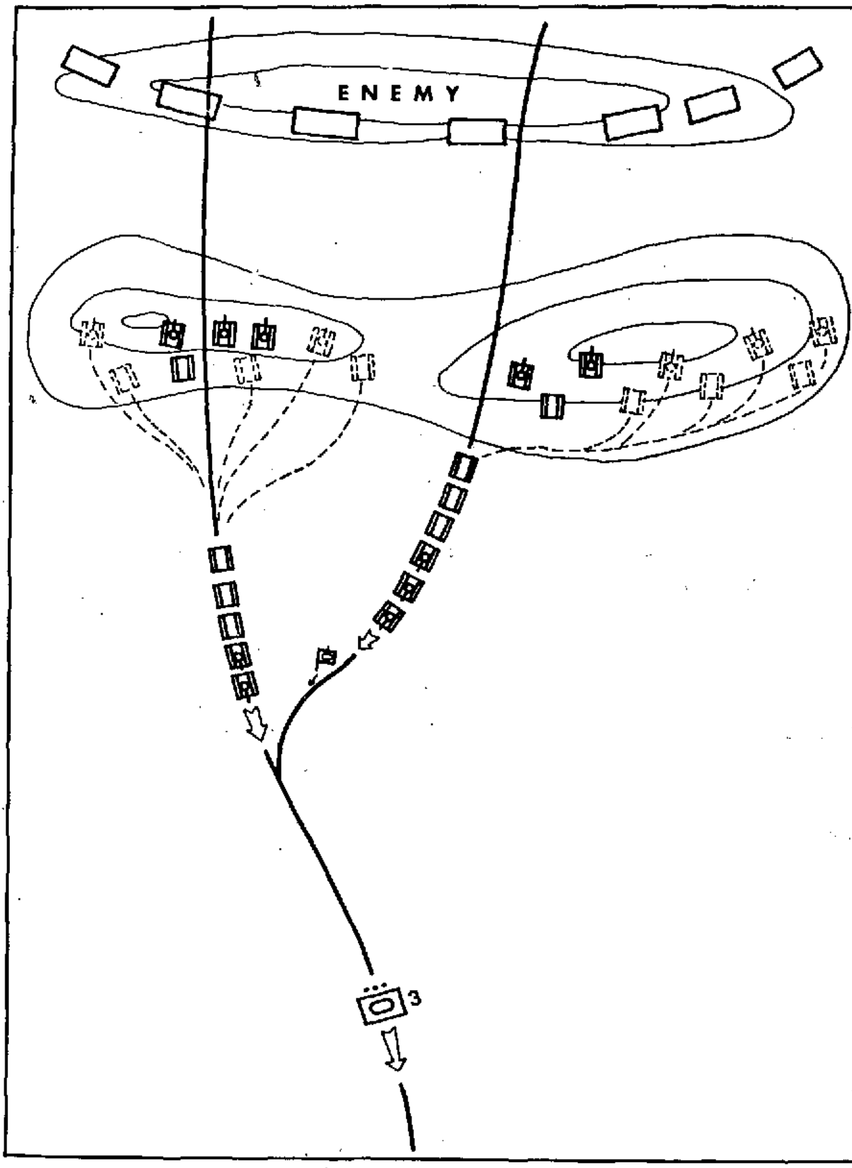


Figure 81. Elements of tank and armored rifle platoons as part of the security force in a withdrawal.

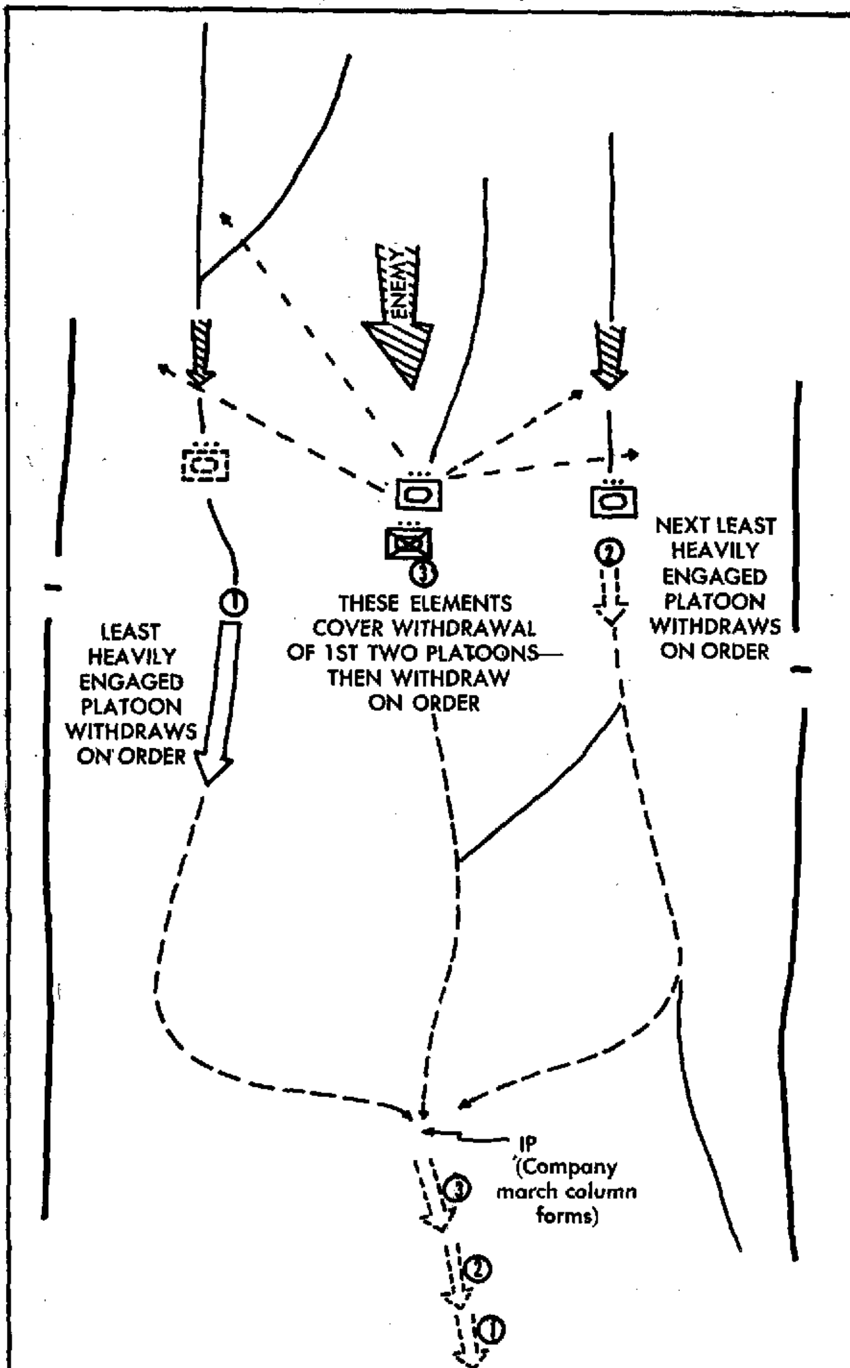


Figure 82. Company withdrawal from contact.

CHAPTER 6

INFANTRY DIVISION ARMOR BATTALION, 90-MM

Section I. ORGANIZATION

161. General

a. This chapter is a guide for personnel of the infantry division in the tactical employment of the division's organic armor battalion. The intent of this chapter is to cover the differences between employment and organization of the infantry division armor battalion and the armored division armor battalion. If there are no differences noted for a particular organization or method of employment, refer to chapters 1 through 5.

b. The infantry division armor battalion is both an administrative and a tactical unit, with supply, medical, and maintenance facilities. Its continued operation is dependent upon adequate resupply of fuel, lubricants, repair parts, and ammunition. It is the only medium-gun tank unit of the infantry division. Light-gun tanks are organic to the infantry division cavalry squadron.

162. Organization, Infantry Division Armor Battalion, 90-mm

The major organizational difference between the infantry division armor battalion and the armored division armor battalion is an additional tank company in the infantry division battalion (fig. 83). Other organizational differences found in the infantry division armor battalion are—

a. Headquarters Company.

(1) There is no organic mortar platoon.

(2) The administrative, mess, and supply section of company headquarters does not have its own organic trucks.

(3) There are no ¼-ton trucks in the company maintenance section.

(4) There are fewer ¼-ton trucks in the battalion headquarters section and battalion communication platoon.

(5) The transportation section has six 2½-ton cargo trucks, one less 5-ton cargo truck, and no organic gasoline tank trucks.

(6) The supply section has a ¾-ton truck and no 5-ton cargo trucks.

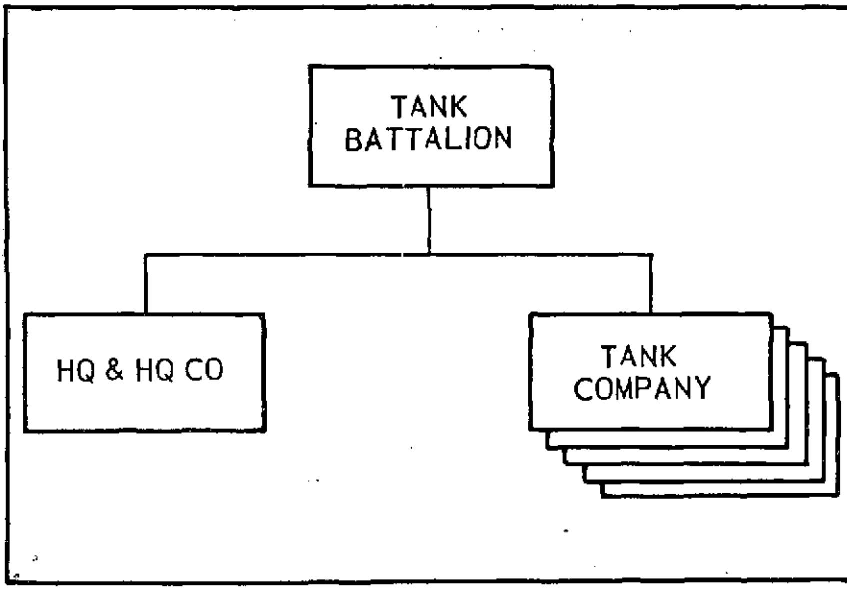


Figure 83. Organization, infantry division armor battalion, 90-mm.

b. Tank Company.

(1) The headquarters section has one less ¼-ton truck.

(2) The administrative, mess, and supply section of company headquarters does not have its own organic trucks.

163. Headquarters and Headquarters Company, Infantry Division Armor Battalion, 90-mm

a. General. The headquarters and headquarters company of the armor battalion is essentially the same in both the infantry division and the armored division (ch. 1 and fig. 84).

b. Indirect Fire Support. The absence of a mortar platoon for mortar support places greater emphasis in coordination and use of supporting artillery and the mortar support which is organic to those infantry units with which the battalion is working.

c. Logistical Support. The support platoon has a reduced transportation capability because it has fewer cargo trucks, and several of the trucks must be used to transport the mess facilities of all companies. This situation is improved by the attachment of gasoline tank trucks from the class III section of the quartermaster company, the attachment of trucks and trailers from the division transportation battalion for transport of 5-gallon gasoline cans, and unit distribution of class I, II, and IV supplies by trucks provided by the division transportation battalion. The support platoon leader has radio communication with the transportation section commander and the battalion S4 over the battalion logistical net. See FM 17–50 for details of logistical support.

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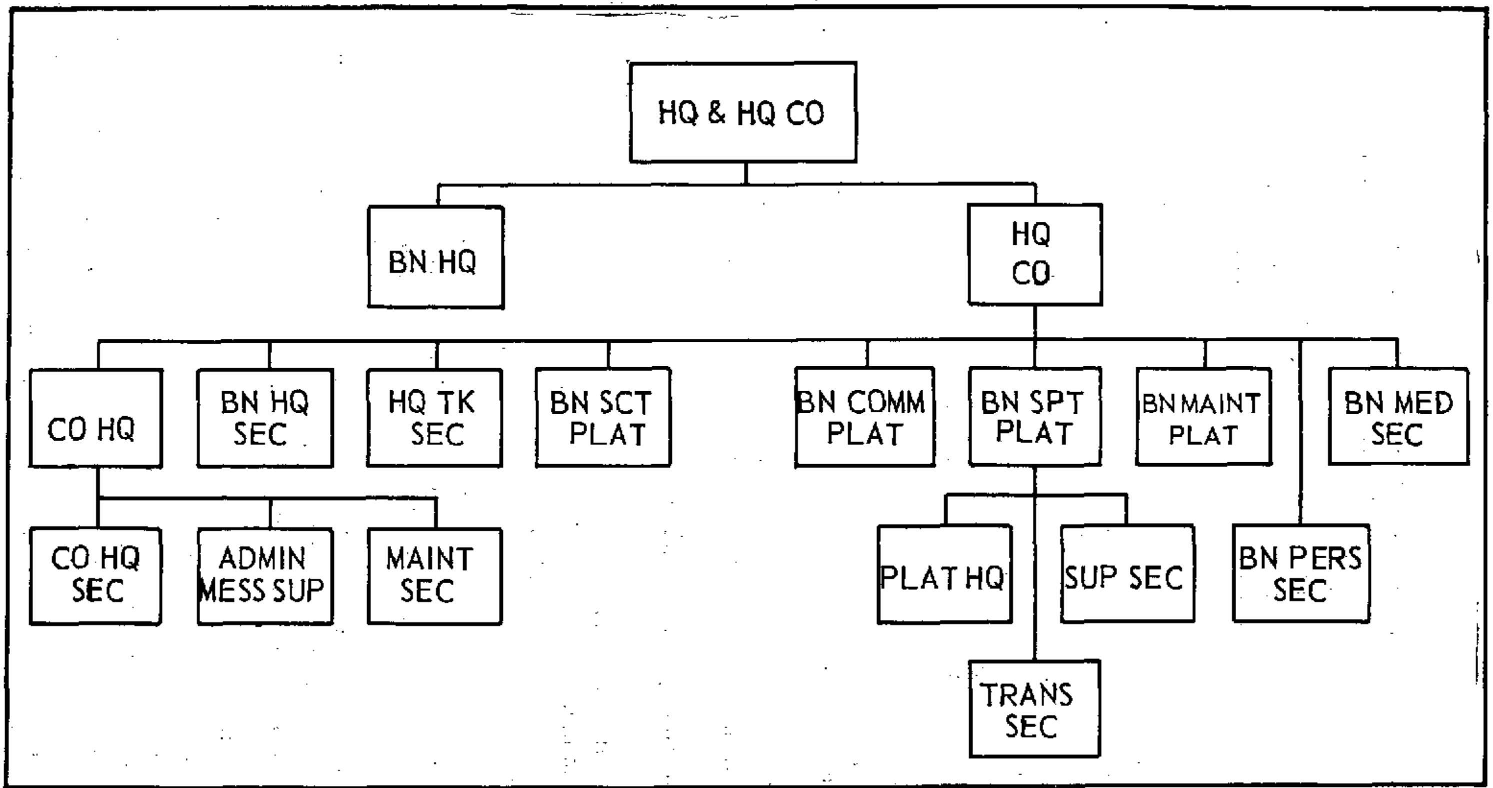


Figure 84.—Organization, headquarters and headquarters company, infantry division armor battalion, 90-mm.

164. Medium Tank Company, Infantry Division Armor Battalion, 90-mm

a. The tank companies are essentially the same in both battalions (ch. 1). If it is necessary for the company executive officer or first sergeant to move by wheeled vehicle, he may use the ¼-ton truck organic to the company headquarters section or the ¼-ton truck organic to the company maintenance section. Because the company administrative, mess, and supply section has no organic vehicles, the company executive officer must habitually keep its transportation problem in mind. A truck with water trailer will be provided each tank company by the battalion transportation section to transport the company mess personnel and kitchen facilities. The company administrative and supply personnel and their equipment are transported in the most expeditious manner consistent with the tactical situation. They may ride with the company mess personnel, the company security section, a battalion transportation section vehicle if available, or some other designated portion of battalion trains.

165. Communication, Infantry Division Armor Battalion

a. General. Definitions, descriptions, and details of signal communication common to all armor units are contained in FM 17–1 and FM 17–70. In the infantry division armor battalion, consideration must be given to the infantry band radios used by the infantry division armor battalion, the artillery band radios used by artillery organic to the infantry division, and the necessity of frequently communicating with hand-held low-power FM radios used by the infantry. Close liaison and communication are particularly important when companies of the battalion are attached to other units. The battalion commander must keep fully informed of the status of his companies.

b. Communication System, Infantry Division Armor Battalion.

(1) See figure 85 for typical radio net for headquarters and headquarters company.

(2) See figure 86 for typical battalion wire net.

(3) See figure 87 for typical tank company radio net.

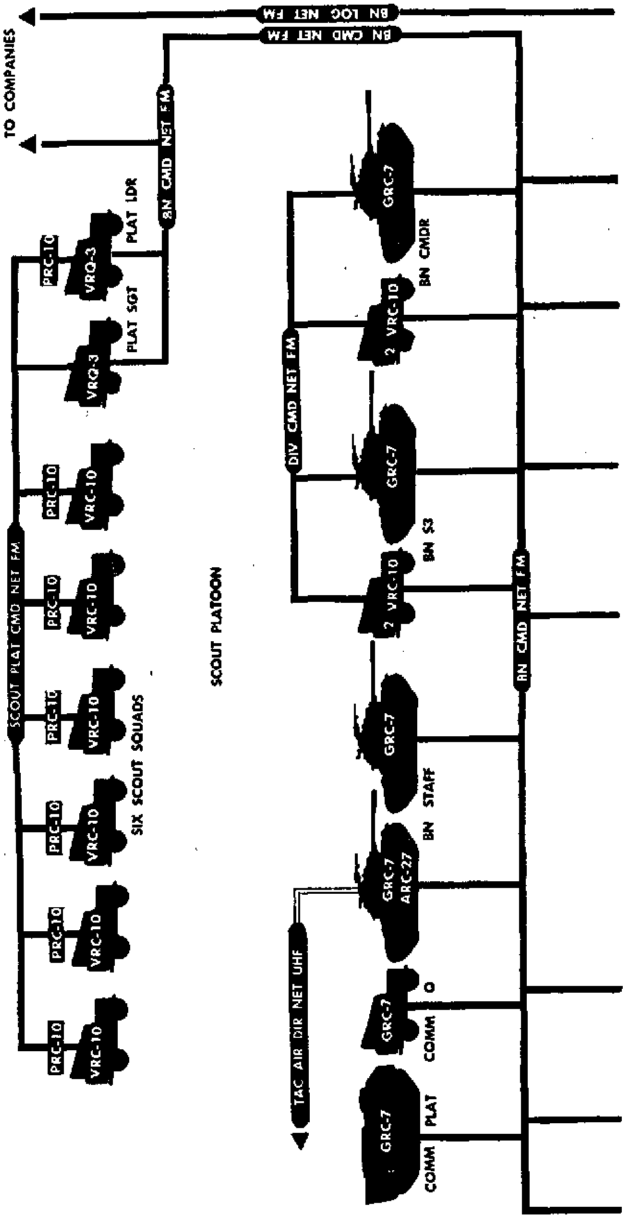
(4) See chapter 1 for typical tank company wire net.

c. Employment of Battalion Communication Platoon. This platoon is employed generally the same as the communication platoon of the armored division armor battalion.

166. Tank Company Communication System

a. The tank company communication system, like that of the tank company of the armored division armor battalion, has separate command nets for the company and for each platoon (ch. 1 and fig. 87).

b. The company commander controls his company through the tank company command net. The company commander's tank, his ¼-ton truck, the platoon leaders' and platoon sergeants' tanks, the


TO COMPANIES
BN LOG NET FM
BN CMD NET FM
BN CMD NET FM
PLAT LDR
PLAT SGT
PRC-10
VRQ-3
VRQ-3
SCOUT PLAT CMD NET FM
PRC-10
VRC-10
SIX SCOUT SQUADS
SCOUT PLATOON
GRC-7
BN CMDR
2 VRC-10
DIV CMD NET FM
BN S3
BN STAFF
GRC-7
ARC-27
TAC AIR DIR NET UHF
COMM O
COMM PLAT
BN CMD NET FM

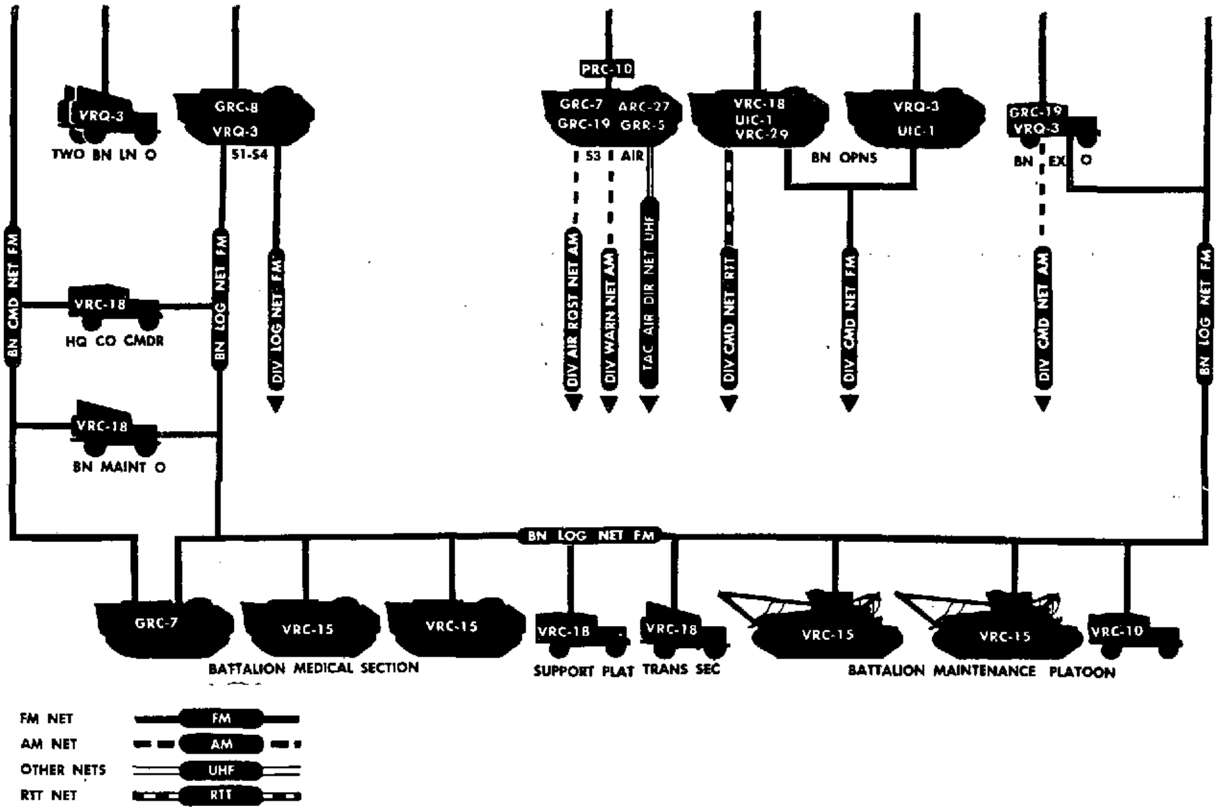


Figure 85. Typical radio net diagram, headquarters and headquarters company, infantry division armor battalion, 90-mm.

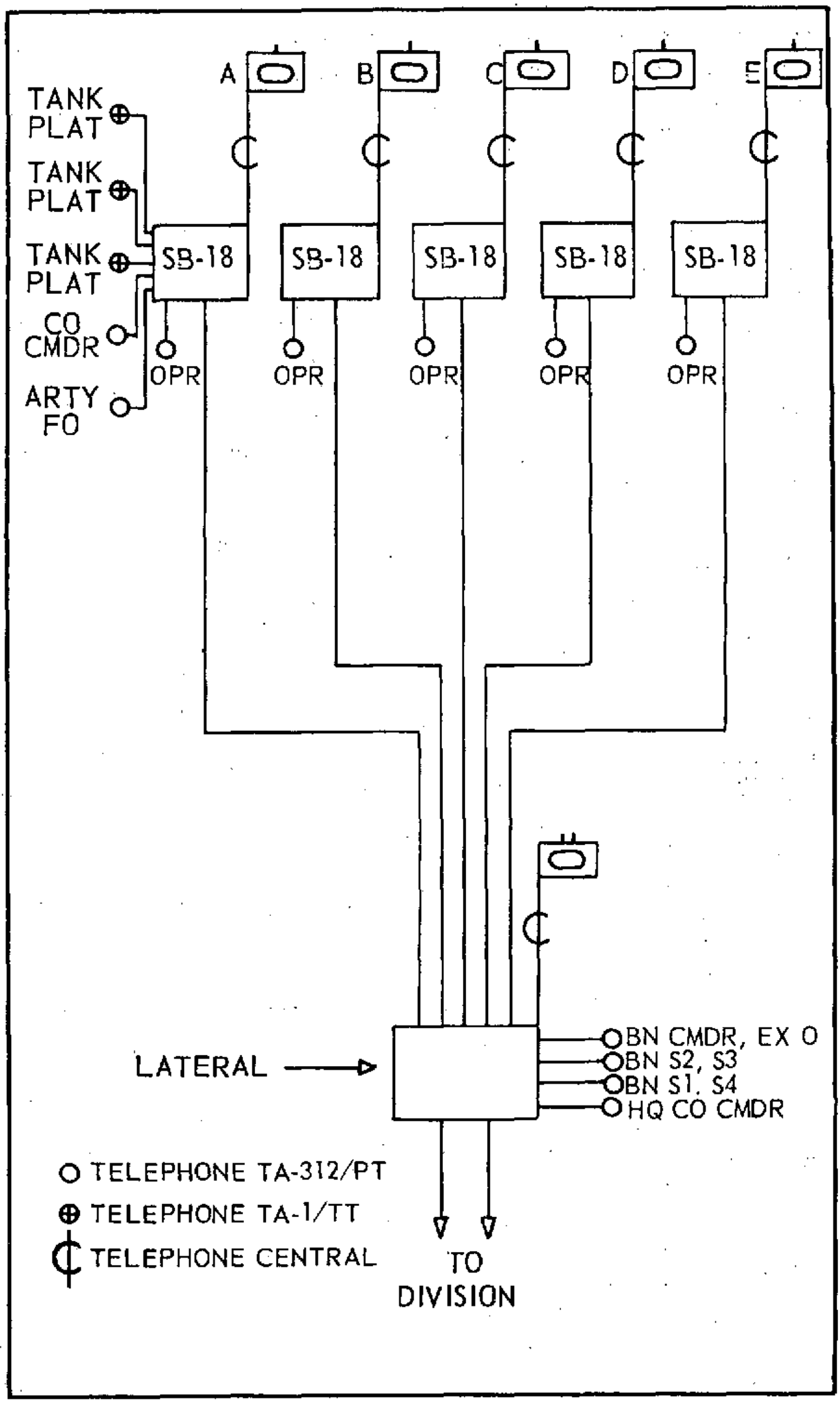


Figure 86. Typical wire net diagram, infantry division armor battalion, 90-mm.

motor sergeant's ¼-ton truck, and the security section's armored personnel carrier operate in this net. The company commander controls his company on his medium-power FM transceiver. The platoon leaders and platoon sergeants operate their auxiliary receivers on the company command net. The battalion command net is monitored on the auxiliary receivers in the company commander's ¼-ton truck, his tank, or the security section's armored personnel carrier (when the carrier's receiver is not monitoring the battalion logistical net).

c. When a company is attached to an infantry unit of the division, the company commander operates the auxiliary receivers in his tank and ¼-ton truck on the higher headquarters command net. At the tank company CP, the auxiliary receiver in the armored personnel carrier also monitors this net or, when necessary, the battalion logistical net to transact administrative and logistical matters.

d. Each tank platoon has its own platoon command net. All tanks of the platoon operate their medium-power FM transceivers on the platoon net.

e. If a tank platoon is detached from its parent company and attached to an infantry company, the platoon leader tunes his auxiliary low-power transmitter-receiver to the infantry company command net and controls the tank platoon on his own tank platoon command net, using the medium-power FM transceiver. He should maintain communication with his parent company to provide for logistical support. His auxiliary receiver can be used for this purpose. The auxiliary receiver in the platoon sergeant's tank could also be used for this purpose.

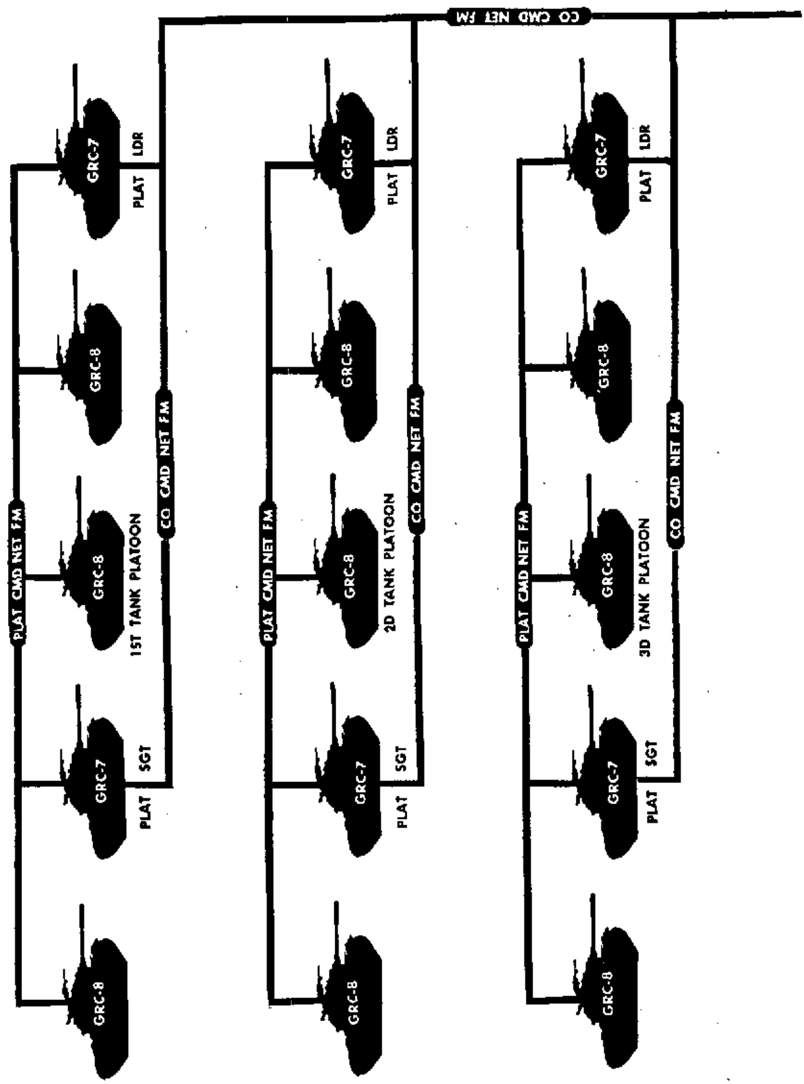
f. When infantry are attached to a tank company, all the tanks operate their low-power FM transceivers on the frequency being used by the infantry platoon leader on his hand-held low-power FM radio.

g. In all cases of tanks working with infantry, the tanks put their low-power transceivers on the frequency of the hand-held radios of the infantry.

h. When an artillery forward observer operates with a tank company, he uses the second tank in the company headquarters. He communicates with his artillery battery or battalion fire direction center by using the medium-power transceiver portion of his radio. The fire direction net must be within the 10-channel overlap of the tank-mounted radio and the radios used by the artillery. The forward observer monitors the tank company command net on his auxiliary receiver.

i. The tank company executive officer must monitor the battalion logistical net, using the company security section vehicle or the maintenance section ¼-ton truck.

j. Wire communication may be used more frequently by the units of an infantry division armor battalion than by units of an armored division armor battalion; therefore, greater skill and efficiency in its use should be maintained.



CO CMD NET FM
1ST TANK PLATOON
2D TANK PLATOON
3D TANK PLATOON
PLAT CMD NET FM
CO CMD NET FM
PLAT LDR
PLAT SGT
GRC-7
GRC-8

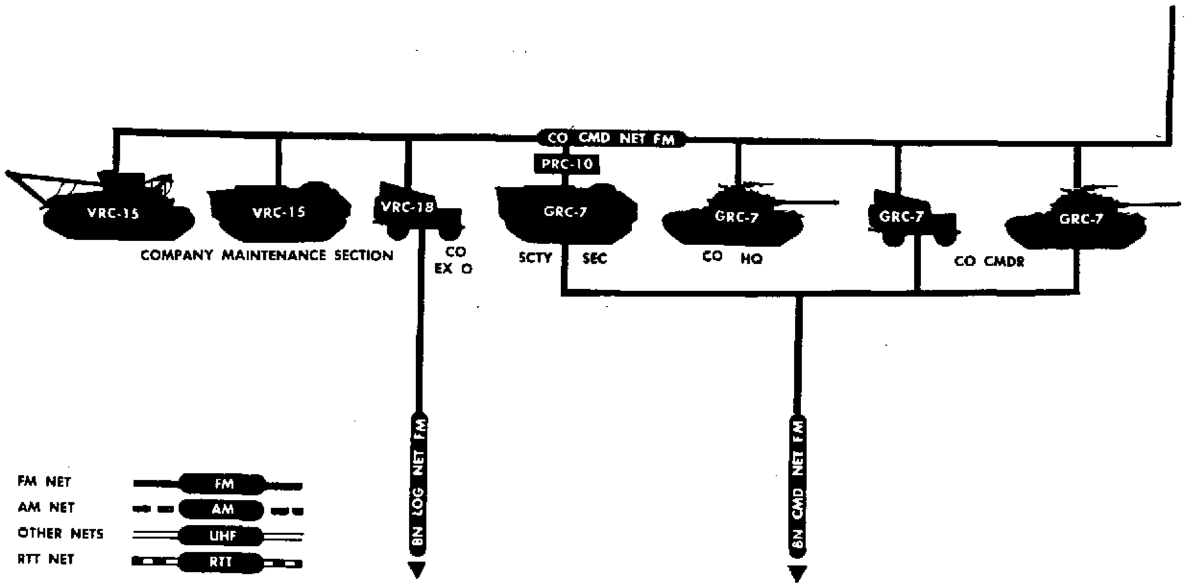


Figure 87. Typical radio net diagram, medium tank company, infantry division armor battalion, 90-mm.

Section II. FUNDAMENTALS OF EMPLOYMENT, INFANTRY DIVISION ARMOR BATTALION, 90-MM

167. Mission, Capabilities, and Considerations

a. Mission. The mission of the infantry division armor battalion is to close with and destroy enemy forces using fire, maneuver, and shock action in mounted close combat.

b. Capabilities.

(1) The battalion is operationally self-sufficient, consisting of fire and maneuver elements, scout elements, and other elements required for communication, planning, and control of operations.

(2) The battalion is administratively self-sufficient for a limited period of time. With normal logistical support from the division, it can operate for a sustained period of time. Necessary elements for limited administrative and logistical support of the companies are found in the headquarters company of the battalion and the additional necessary transport habitually attached by the division.

(3) The battalion, when organized for combat, is capable of—

(*a*) Attacking or counterattacking under hostile fire.

(*b*) Destroying enemy armor by fire.

(*c*) Supporting infantry or other tanks by direct fire, maneuver, and shock action.

(*d*) Rapidly exploiting breakthroughs.

(*e*) Rapidly exploiting effects of atomic weapons.

(*f*) Conducting independent operations, with or without reinforcements.

(*g*) Rapidly pursuing and destroying the enemy.

(*h*) Conducting retrograde operations, when reinforced.

(*i*) Participating in defense.

(*j*) Seizing and holding terrain, when reinforced.

c. Considerations.

(1) When the infantry division armor battalion is employed as a reinforced unit, the method of its employment is generally the same as that of an armor battalion task force of the armored division. However, in the infantry division, the armor battalion will be teamed with regular infantry instead of armored infantry (though the infantry may be transported in armored personnel carriers), and will be supported by towed instead of self-propelled artillery. Other differences which must be given consideration in a comparison of methods of employment are—

(*a*) The smaller ratio of tanks to infantry if tanks are distributed among all battle groups.

(b) Means of communication between tanks and infantry.

(c) The speed of conducting the attack.

(2) In the armored division, all combat and combat support units have many heavy full-track vehicles. In the infantry division, on the other hand, the armor battalion is the only sizable combat unit which has many vehicles of this type. This difference between the armor battalion and other combat units of the division emphasizes certain problems which must be constantly considered if the battalion is to be employed to greatest advantage. Among these problems are—

(a) The necessity for a constant and adequate supply of fuel and lubricants.

(b) Sensitivity of armor to terrain, meteorological conditions, and obstacles.

(c) The necessity for extensive maintenance.

(3) The armor battalion can move simultaneously all organic personnel and equipment with organic transportation; however, the battalion cannot be air transported as can the majority of other units of the infantry division.

168. Operations and Employment

a. Battalion Commander and Staff. The armor battalion commander in the infantry division has the same responsibilities as does the armor battalion commander in the armored division. In addition, he acts as the armor adviser for the division commander and as the division anti-tank officer. The organization and operation of the battalion staff are similar to that of the staff of the armored division armor battalion. Additional problems in operations, logistics, and administration confront the battalion commander and his staff when the companies of the battalion are attached to infantry battle groups. In order to provide maximum assistance to detached companies, the battalion must maintain coordination and liaison with the division staff, the battle group staff, and the tank company commanders. Staff visits to each company should be made frequently.

b. Method of Operation. The operations of the infantry division armor battalion generally follow the doctrine, tactics, and techniques contained in chapters 1 through 5 of this manual and FM 17–1.

(1) The more important methods in which the infantry division armor battalion may be employed are as follows:

(a) As a battalion, with or without reinforcements, under division control.

(b) As a battalion, attached to one battle group.

(c) With 1 or 2 companies attached to a battle group and the battalion (minus) attached to another battle group or under division control.

(*d*) With 1 company attached to each of 2, 3, or 4 battle groups and the battalion (minus) attached to another battle group or under division control.

(*e*) With 1 company attached to each of 5 battle groups and the battalion (minus) under division control.

(2) The method of employment depends upon the division mission, information of the enemy, obstacles, weather, terrain, and the number of tank units available to the division commander. After considering these factors, the division commander determines where and in what force tanks should be employed. The guiding principle is that the battalion should be employed in the method that will most decisively influence the action. The armor battalion is most effective when employed as a unit; if the situation makes it necessary to detach companies, those companies should be employed as units. Tank units should be employed by concentrating them to make a penetration or to envelope a decisive point, rather than by dissipating them on a broad front. The fewer the number of tanks available to the commander, the greater is the requirement for the concentration of the tanks to obtain effective firepower and shock action.

(3) When the battalion remains under division control, it usually will be employed to block, reinforce, attack, counterattack, delay, or act as the division reserve.

(4) In certain situations a tank company may be attached to the cavalry squadron. Such a company is usually employed to lead the attack and to provide added antitank capabilities.

(5) The battalion may become a task force with the attachment of other combat and service support units. Normally the armor battalion operating as a task force requires the attachment of infantry and engineers and the support of artillery, Army aviation, and service support units.

(6) The principles and procedures for marches and bivouac and assembly areas as outlined in chapter 7, FM 17–1, apply to the infantry division armor battalion. Marches of the division must be so planned that the movement of the tank unit does not interfere with the march of other elements of the division. In order to avoid such interference, the armor battalion is frequently given a separate route of march, or it may march as an independent serial.

(7) Logistical support for the battalion is provided directly by the appropriate division service support units. The division normally transports class III supplies from the division distributing point to the battalion (unit distribution), except when the situation dictates supply point distribution. Classes

I, II, and IV supplies are delivered to the battalion (unit distribution) by the division logistical agencies. Additionally, the armor battalion transports reserve supplies such as reserve rations and basic loads of ammunition. The battalion normally obtains class V supplies directly from the army class V supply point. The battalion performs first- and second-echelon maintenance on all types of equipment. Within its capabilities, it evacuates to division support elements any equipment which requires higher echelon maintenance. The battalion evacuates salvage material to the division salvage collecting point.

Section III. OFFENSIVE OPERATIONS, INFANTRY DIVISION ARMOR BATTALION, 90-MM

169. General

a. The principles outlined in chapter 8, FM 17-1, covering the purposes of offensive action, forms of offensive action, distribution of forces, and frontages, axes, and zones in the offensive, generally apply to the infantry division armor battalion.

b. When this armor battalion is operating as a task force, under either division or battle group control, it conducts offensive operations generally according to the principles set forth in chapter 3, except as discussed below.

170. Preparation for the Attack

a. General. In the preparation for the attack, the steps taken by the infantry division armor battalion commander closely parallel those discussed in chapter 3. However, the infantry division armor battalion commander usually makes a recommendation to the division commander as to the best method of employing his battalion to facilitate accomplishment of the division mission.

b. Organization for Combat. While the distribution of tank strength throughout the infantry division will vary with the specific situation, it can be expected that one or more tank companies will often be attached to each of two assaulting battle groups with the battalion (minus) under division control. Other possible types of attachment are discussed below.

(1) The armor battalion or a major portion thereof may be attached to a battle group. This method of employment of the battalion is desirable, for example, when the terrain, and other factors affecting the employment of armor, are favorable in front of one battle group, and the division commander decides to make the main effort of the division in the zone of this battle group. When this is done, the primary role of the tank element is to lead the attack. The armor battalion

should be reinforced with infantry mounted in armored personnel carriers and should be given adequate fire support and logistical support. The reinforced armor battalion should be committed on favorable terrain to seize the final objectives. Infantry may be attached to tank companies to form tank-infantry teams. Frequently, tank companies without attached infantry will execute attacks; this type of attack may be used to rapidly and effectively exploit the effects of friendly atomic weapons. Similarly, tank companies may be employed without attachments in tank-versus-tank actions (pars. 56–65).

(2) One or more tank companies may be attached to two of the battle groups and the battalion (minus) attached to a third battle group. The factors discussed in (1) above apply equally to this type of attachment. However, the tank strength is even further distributed, and consequently more time will be needed to assemble the entire battalion should the need arise. This form of attachment may be desirable when the division is attacking or exploiting with three battle groups abreast, when the enemy has relatively weak tank strength and is uniformly distributed, or when the division is employing two battle groups abreast with the remainder in reserve.

(3) One company may be attached to each of three battle groups and the battalion (minus) kept under division control. This type of attachment may be made under the conditions outlined in (2) above, except that the battalion (minus), reinforced and under division control, is retained as the division reserve to exploit successes of the forward battle groups. When tank companies are attached to battle groups, the primary role of the tank is to assist the advance of the infantry by fire, maneuver, and shock action. These tank companies should be employed on the most favorable terrain and against decisive objectives. Tank companies with or without attachments may be employed under battle group control, or further attached to rifle companies. Every effort should be made to maintain the tactical integrity of tank units. When possible, this should be done at company level and at platoon level; however, in exceptional circumstances, such as when fighting in dense woods, jungles, or built-up areas where observation is restricted, tank sections may be attached to rifle platoons for purposes of control. Suitable plans should be made for the rapid regrouping of these tank companies to permit their employment at the most critical time and place.

(4) The armor battalion may be kept as a unit, with or without reinforcements, under division control. The battalion may frequently be kept under division control, with or without reinforcements, ready to exploit success. When it is necessary for the division to commit all infantry battle groups, the reinforced armor battalion can be used to form the division reserve.

c. Scheme of Maneuver.

(1) It is not desirable that the pace of the tank attack be slowed to the pace of the infantry attack. Tanks cannot remain motionless in the open when in range of enemy antitank guns, nor is it desirable that their speed be slowed under these circumstances. Once an assault is launched, the losses are proportionate to the time it takes the overrun the objective.

(2) The fundamental methods and techniques of employing tank-infantry teams are discussed in chapter 8, FM 17-1. In the infantry division, tanks and dismounted infantry may be employed in such teams; or the infantry may be mounted in armored personnel carriers from the division transportation battalion.

171. Conduct of the Attack

a. General. The infantry division armor battalion conducts attacks in the same manner as the armored division armor battalion (ch. 3 and FM 17-1, ch. 8).

b. Movement to the Objective. Although it is not desirable for the pace of the tank attack to be slowed to the pace of dismounted attacking units, it is sometimes necessary to delay the tank units' arrival on the objective by making greater use of movement by bounds or a delayed time of departure. Hostile antitank fire, or terrain which prevents a continuous and coordinated movement by tanks and infantry, may make it desirable for the tanks to move by bounds or to cross the line of departure after the dismounted element. Prior to the attack, plans must be made to coordinate the rate of movement of tanks and dismounted units. Every effort should be made to allow the tanks to advance rapidly. Whenever the situation permits, the infantry should be allowed to ride on the tanks or should be transported by armored personnel carriers.

c. The Assault and Consolidation.

(1) The assault on the objective is launched when the leading elements have advanced to predetermined assault positions, usually within 150 yards of the objective. The nature of the assault will depend upon the method of movement. The commander should seek to exploit the effects of firepower and

shock action. Mutual support between the tanks and infantry becomes vitally important as they close with the enemy. Tanks neutralize or destroy enemy groups, weapons, and defensive works. Infantry protect the tanks from individual antitank weapons and destroy the enemy by close combat.

(2) When the objective is overrun and the enemy destroyed or captured, the assault elements are quickly organized to protect themselves against counterattacks. The infantry and tanks are disposed to provide all-round protection, based upon the previous plans for consideration. The tanks occupy positions covering avenues of approach for enemy armor.

172. Exploitation

a. See paragraphs 101 throught 104 for a discussion of exploitation. When the infantry division armor battalion is used as an exploiting force, it operates in the same manner as does the armored division armor battalion.

b. A reinforced armor battalion frequently may be used as an enveloping force when the infantry division has begun the exploitation phase. It will be organized to operate independently for short periods of time and will be a force of combined arms.

c. The infantry attached to the battalion must be transported by elements of the division transportation battalion or on the tanks. If infantry must ride tanks, a rifle platoon will ride on the tanks of one or two tank platoons; each rifle platoon leader rides with a tank platoon leader. The leading tank units should not carry infantry.

Section IV. DEFENSIVE OPERATIONS, INFANTRY DIVISION ARMOR BATTALION, 90-MM

173. General

The principles and techniques of both mobile and position defense, as discussed in chapter 4 and FM 17–1, apply to the infantry division armor battalion. In the application of these techniques, additional consideration must be given to the difference in mobility of the supporting arms in the armored division and the infantry divisions.

174. Defensive Combat by the Infantry Division

a. The infantry division is capable of conducting all types of defensive operations. Because of its organization and ability to exploit the terrain, it is more suited to perform a position defense than a mobile defense. The position defense permits personnel of the division to utilize to the maximum the protection of the terrain, prepared emplacements for weapons, individual shelters for personnel, and other types of defensive works. When provided with adequate trans-

portation and augmented by additional combat forces, the infantry division is capable of conducting an effective mobile defense.

b. The infantry division armor battalion, properly reinforced, is well suited for a mobile defense. It may conduct such a defense during exploitation while it is waiting for the rest of the division to move up to join it, or when it is acting as all or part of a general outpost in a defensive action. Also, it may act as part of the striking force when the division is conducting mobile defense.

175. Missions Assigned the Armor Battalion During Defensive Combat

a. The infantry division armor battalion must be assigned defensive missions in which it can use its mobility and shock action to the greatest possible extent under the existing conditions. These missions include—

(1) Adding strength to the counterattack.

(2) Adding depth to antitank protection.

(3) Acting as a covering force or outpost for the division.

b. In most cases, units of the battalion can best assist in the defense by employing offensive tactics. Every effort must be made to avoid static positions or the emplacement of tanks; such techniques usually are effective only when an ambush is used. All tanks, regardless of their mission or location, should be so placed that they have clear fields of fire and can be readily maneuvered.

176. Methods of Employing the Armor Battalion in Defense

a. There are four normal possibilities for the employment of the infantry division armor battalion in the defense. These are—

(1) The battalion attached to the division reserve.

(2) One company or more attached to the battle group having the most suitable sector for enemy armor approach, with the battalion (minus) attached to the division reserve.

(3) One company or more attached to each of two or more battle groups and the battalion (minus) attached to the division reserve.

(4) The battalion, reinforced, as the division reserve.

b. The ability of the armor battalion to operate as an effective element of the striking force, to destroy any enemy which may penetrate the battle area, decreases as the number of companies detached from the battalion increases. When employed as part of the striking force, the battalion should be retained as a unit whenever possible.

c. The terrain to be defended, and the composition of the enemy force facing the position, usually have a decisive influence on the decision as to which method of employment is to be used. The battalion must be used to increase the counterattack strength of the division and to insure adequate defense against mass tank attacks. Ter-

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rain which affords good fields of fire and long-range observation may permit the concentration of the armor battalion in a rearward position. In the disposition of the battalion, care must be taken to ensure that terrain corridors, which are good avenues of approach for enemy tanks, are covered.

177. The Tank Company With Forward Infantry Battle Groups

The commander of the forward infantry battle group in defense employs attached tanks to provide antitank protection for his battle area, to furnish direct-fire support to the forward edge of the battle area (FEBA), and to support the infantry battle group counterattack. He may place a portion of his tanks in positions from which they can fire in front of the FEBA; normally these tanks will be located within or close to platoon defense areas. The remainder of his tanks may be placed in depth, covering possible enemy tank approaches from the front, flanks, and rear. The tanks in depth are prepared to assist the battle group reserve in the counterattack; the tanks are attached to the reserve upon its commitment.

178. The Armor Battalion Attached to the Division Reserve

a. The counterattack capabilities of the division reserve are greatly increased by the attachment of all or the greater part of the armor battalion. The employment of the battalion as a striking force by the reserve is similar to its employment in the attack. The division reserve in defense may often have two missions to perform: a containing mission and a counterattacking mission. Any enemy penetration must be contained or partially contained before a counterattack can be advantageously launched. The infantry elements of the reserve, reinforced by part of the tanks, may be used to block and contain a penetration, if other troops have not accomplished this mission; and the major portion of the armor battalion may be used as a striking force to destroy the enemy penetrating force. This is a combined and coordinated effort; the armor battalion, properly reinforced, should be the maneuvering force.

b. Although the tanks attached to the reserve may be occupying firing positions, they must be prepared to move immediately to any portion of the division front to block or counter any enemy penetration.

c. When the reserve performs the mission of general outpost for the infantry division, one of its normal attachments will be the division armor battalion. When tank units are on outpost duty, they are located within the outguard position. They engage enemy armor and mechanized elements at maximum range. They facilitate the rapid withdrawal of infantry elements. They withdraw over previously selected routes to their designated reserve area.

179. The Armor Battalion, Reinforced, as the Division Reserve

The infantry division armor battalion may be used as the division reserve.

a. The division commander may be forced, either because of the width of his sector or because of a depletion of his infantry strength, to commit all infantry battle groups in the front line. In this situation, the armor battalion, intact and reinforced with infantry, normally is used to form the division reserve.

b. When it is indicated that the enemy may employ tank-heavy forces in an attempt to penetrate and rupture the position, the reinforced armor battalion may be used as the division reserve to meet this threat.

180. Withdrawals From Action

a. The armor battalion, because of its characteristics, can break contact with the enemy more rapidly than can infantry units. In some situations, the division may use the armor battalion, reinforced, as a covering force in a daylight withdrawal. In such cases the armor battalion might fight a delaying action after the infantry have started their rearward movement. All units attached to the battalion must be transported by vehicle; some of the infantry may be transported on the tanks.

b. It often is necessary for the armor battalion to counterattack in order to enable the infantry to start their withdrawal. Just prior to the time the withdrawal starts, the reinforced armor battalion makes a coordinated attack in a vital part of the division or battle group zone, supported by all available fires. The extent of the attack may be limited to a demonstration on a broad front with all tank companies deployed, but it must be carefully planned and coordinated. If the terrain permits, the armor battalion may occupy positions immediately in rear of the infantry units which will withdraw; these units, under the cover of supporting fires by the tanks and other weapons, withdraw through the position occupied by the armor battalion. The armor battalion then fights a delaying action until the infantry have withdrawn to their new positions.

APPENDIX

REFERENCES

FM 6–20	Artillery Tactics and Technique.
FM 7–40	Infantry Regiment.
FM 7–100	The Infantry Division.
FM 17–1	Armor Operations, Small Units.
FM 17–12	Tank Gunnery.
FM 17–20	Armored Infantry Units—Platoon, Company, and Battalion.
FM 17–35	Reconnaissance Battalion, Armored Division.
FM 17–50	Logistics, Armored Division.
FM 17–70	Signal Communication in the Armored Division.
FM 17–79	Tank, 90-mm Gun, M48.
FM 17–100	Armored Division and Combat Command.
FM 20–100	Army Aviation.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.
FM 21–60	Visual Signals.
FM 21–75	Combat Training of the Individual Soldier, and Patrolling.
FM 31–50	Combat in Fortified Areas and Towns.
AR 220–60	Field Organizations; Battalions, General Provisions.
AR 220–70	Field Organizations; Companies, General Provisions.
AR 750–5	Maintenance Responsibilities and Shop Operations.
DA Pam 39–1	Atomic Weapons Employment.
DA Pam 39–3	The Effects of Nuclear Weapons.
DA Pam 108–1	Index of Army Motion Pictures, Filmstrips, Slides and Phono-Recordings.
DA Pam 310-series	Military Publications Index (as applicable).
SR 320–5–1	Dictionary of United States Army Terms.
TM 21–301	Driver Selection, Training, and Supervision, Half-Track and Full-Track Vehicles.
TM 21–306	Manual for the Full-Track Vehicle Driver.
TM 9–2810	Motor Vehicle Inspection and preventive Maintenance Services.
TC 3–2	Radiological Surveys.

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By Order of *Wilber M. Brucker*, Secretary of the Army:

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Chief of Staff.

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Units organized under following TOE's:
17–17, Tk Co., 76-mm Gun, Sep
17–27, Tk Co, 90-mm Gun
17–37, Tk Co, 120-mm Gun or 90-mm Gun
17–55, Armd Cav Recon Bn
17–57, Recon Co

NG: State AG; units—same as Active Army.

USAR: Units—same as Active Army.

For explanation of abbreviations used, see AR 320–50.

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